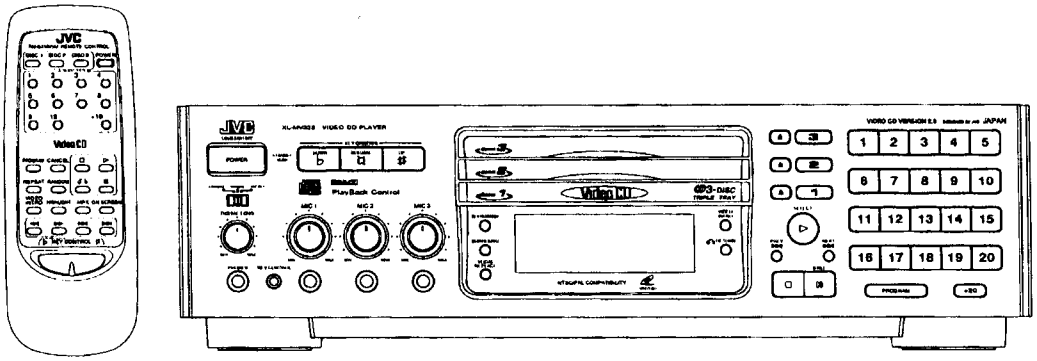
# JVC

# SERVICE MANUAL

## VIDEO CD PLAYER

# XL-MV338BK

**Area Suffix**
UF.....China



PlayBack Control  Video CD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No.20645
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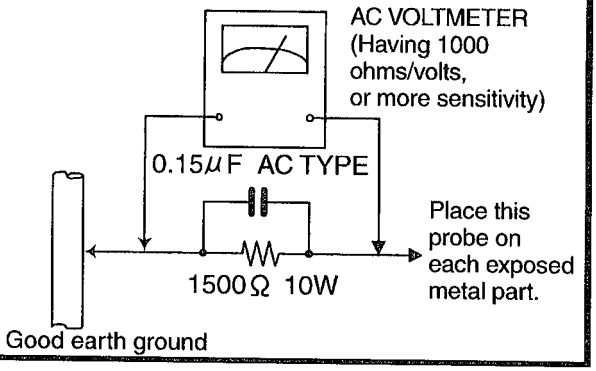
## Safety Precautions

1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet , particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.)
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to eachexposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. voltage measured Any must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).




## Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

# Important for Laser Products

1. CLASS 1 LASER PRODUCT
2. DANGER : Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. CAUTION : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.
4. CAUTION : The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
5. CAUTION : If safety switches malfunction, the laser is able to function.
6. CAUTION : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

VARNING : Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

ADVARSEL : Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

ADVARSEL : Usynlig laserstråling ved åpning, når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

## REPRODUCTION AND POSITION OF LABELS

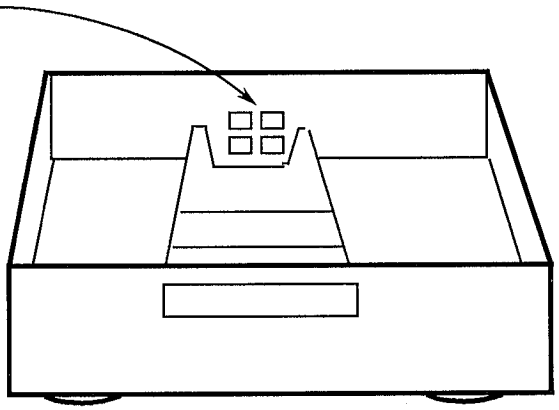
### WARNING LABEL

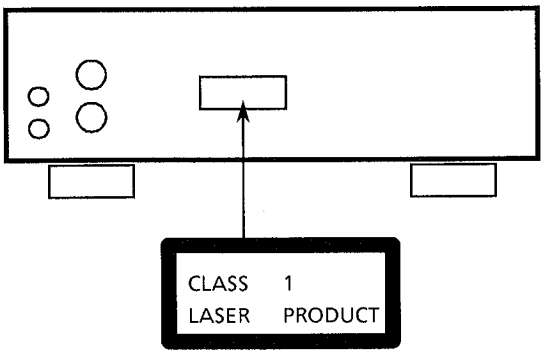
DANGER: invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e)

VARNING: Osynling laserstråling när denna del ä öppnad och spärren är urkoppled. Betrakta ej stålen. (s)

ADVARSEL: Usynling laserstråling ved åbning, når sikkerhedsafbrydere er ude at funktion. Undgåudsættelse for stråling. (d)

VARO: Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f)



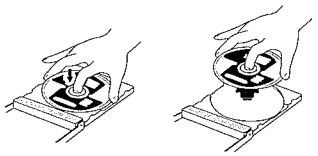



**CLASSIFICATION LABEL**

# GENERAL INFORMATION

## Care and handling of compact discs

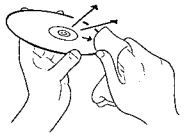
**How to handle CDs**
When handling a compact disc, do not touch the surface of the disc (reflective silver side — the side without the label).
Since compact discs are made of plastic, they are easily damaged. If a disc gets dirty, dusty, scratched or warped, the sound will not be picked up correctly and, in addition, such a disc may cause the CD player to malfunction.



**Even on label side**
Do not damage the label side, stick paper to or use any adhesive on its surface.

**Storage**
Make sure that discs are kept in their cases. If discs are piled one on top of another without their protective cases, they can be damaged. Do not put discs in a location where they may be exposed to direct sunlight, or in a place where the humidity or temperature is high. Avoid leaving discs in your car!

**Maintenance of discs**
If there are fingerprints or other dirt adhering to a disc, wipe it with a soft dry cloth, moving from the center outwards.
If a disc is difficult to clean, wipe with a cloth moistened with water. Never use record cleaners, petrol, alcohol or any anti-static agents.



**CAUTION**
Sometimes during play noise or images may be garbled. This is sometimes due to the disc. (It may not be up to industry standards.) These symptom are caused by the discs, not by the malfunction of the Player.

**Which compact discs can be used?**
Many types of compact discs are sold for a variety of uses. The Video CD Player can play the following compact discs:

- **Video CD**
  for audio and video (moving picture) reproduction, including multiplex sound.

- **Video CD with Playback Control function**
  featuring menu-type operation and super-fine still pictures for audio and video (moving picture) reproduction, including multiplex sound.

- **CD Graphics (CD-G)**
  for audio and video (still picture) reproduction, including multiplex sound.

- **Digital Audio CD, including single discs**
  for audio reproduction.

**CDs you can't play back**
Do not play back CD-ROMs, DVDs, or CD-is on this equipment. Doing so may generate a noise which can damage your speakers.

**Using the remote control**
The remote control is ready to use when its batteries are installed properly.
To use it, point its infrared light-emitting window toward the display window of the player and press a button. The operating range of the remote control is up to about seven meters in front of the player and within about 30 degrees to each side — with nothing between the remote control and the player interrupting the beam path.
If pressing a button on the remote control does not produce any response, check to make sure it is pointed correctly and try again. If it still does not function, check the batteries.



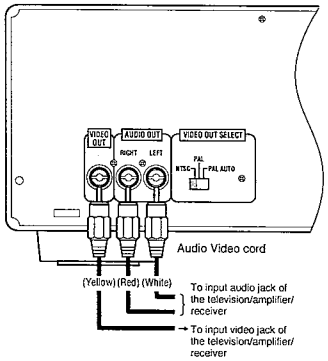
# BEFORE USING FOR THE FIRST TIME

## Basic Connections

The Video CD Player must be connected directly to a television set or an amplifier that is connected to a television or monitor. The television set or the amplifier must have audio input jacks for right and left channels and a video input jack.
Select a level, dry location free of dust and vibration, and having a temperature maintained between 5 and 35°C (41 and 95°F).

### Connecting player to a TV or amplifier using the Audio Video cord

First connect the Audio Video cord — before connecting the AC power cord.
Firmly insert the yellow pin plug of the Audio Video cord in the yellow VIDEO OUT jack on the rear panel of the player; the red pin plug in the red AUDIO OUT (RIGHT) jack; and the white pin plug in the white AUDIO OUT (LEFT) jack. (The RIGHT and LEFT output jacks are for the right and left audio channels.)
Then make sure that the television, amplifier or receiver is turned off, disconnect the AC power cord and firmly insert the pin plugs at the other end of the Audio Video cord into the matching video and audio INPUT jacks.




### Video out select

Set the VIDEO OUT SELECT switch on the rear panel to NTSC, PAL, or PAL AUTO mode according to your television system.

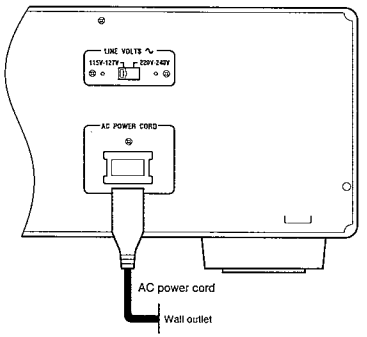
NTSC ..... for NTSC exclusive TV
PAL ..... for PAL exclusive TV
PAL AUTO ..... for Multisystem TV
PAL AUTO is the mode to detect the format of the disc (NTSC/PAL) automatically and play the image on screen the right way.

***Notes***
- When you play a NTSC disc in PAL AUTO mode on a PAL exclusive TV, the image may get distorted.
  (If the signal doesn't synchronize.)
  In this case, reselect the mode to "PAL".
- Select the mode before you play the disc. If you change the mode during play, images may get distorted. In this situation stop the player and reset the mode.
- When you play a NTSC disc in PAL AUTO mode on a Multi system TV, the image may blink for a moment. This symptom is caused by the Player detecting the format of the disc and not caused by a malfunction of the Player.

### Connecting the power cord

**IMPORTANT**
Check the setting of the LINE VOLTS switch on the rear panel of the player. Change the setting if the switch is not set for the main voltage supplied to your home.
With the LINE VOLTAGE switch correctly set and the audio-video connectors connected, insert the smaller plug of the power cord firmly into the AC POWER CORD socket on the rear panel of the player.

When the power cord is connected, the STANDBY indicator on the left-hand side of the player's front panel comes on. [See "Overview of controls" for a description of the controls on the player.]




**Line voltage alteration**
What is your power main voltage? Is it between 115 and 127V, or 220 and 240V? If the LINE VOLTS switch on the rear panel of the player is not set to your power main voltage, disconnect the power cord, if it is already connected, and change the switch setting accordingly.

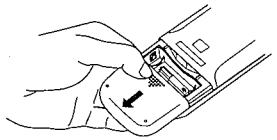
English

# Installing batteries

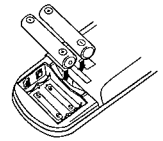
## Putting batteries in the remote control

The battery compartment is located on the back of the remote control.

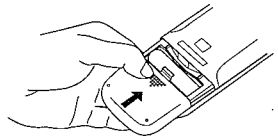
1. **Press down on the triangular mark of the compartment cover, and slide the cover off to open the compartment.**



2. **Place the two accessory R03 (UM-4)/AAA (24F) batteries in the remote control according to the polarity markings ("+" and "–") inside the compartment and on the batteries.**



3. **Place the cover over the compartment, press down lightly, and push it upward until it snaps on.**



The batteries last about one year with normal use. If function of the remote control become erratic, replace the batteries. See "Precautions for the safe use of batteries" below for more information.

**Precautions for the safe use of batteries**

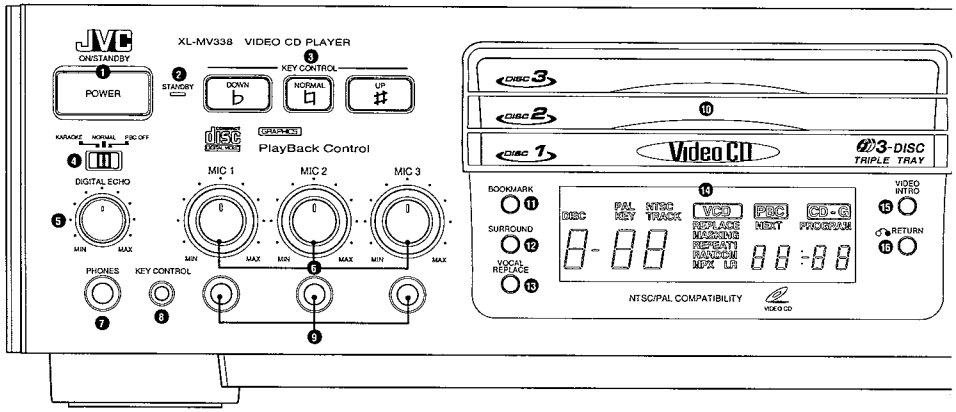
Observe the following precautions for the safe use of batteries. Their life will be shortened, they may burst or their contents may leak if they are used improperly:

- Remove batteries from the remote control if it is not going to be used for a long period of time.
- Remove dead batteries and dispose of them properly.
- Never leave dead batteries lying around, take them apart, mix them with other refuse, or throw them into an incinerator.
- Never touch liquid that has leaked out of a battery.
- Do not mix new and old batteries, or batteries of different types, when replacing them.



# OVERVIEW OF CONTROLS

Here the basic function of controls on the front panel of the Player and the remote control are explained. The function of some controls may be restricted in actual use depending on the on-going operations. The remote control has nine (9) unique function buttons in addition to those on the player. The controls with identical names on the Player as on the remote control have the same function and are used in the same manner.




## Left front panel of the Player

(controls marked (R) have equivalents on the remote control)

❶ **POWER button (R)**
turns the power on and off.

❷ **STANDBY indicator (Red)**
lights when the power cord is connected and the power is turned off. The STANDBY indicator is not lit when the player is turned on.

❸ **KEY CONTROL button (R)**
Transposes the music key.
DOWN ♭ button : used to flatten by a half tone.
NORMAL ♮ button : returns to original key tone.
UP # button : used to sharpen by a half tone.

❹ **MODE switch**
Switches the KARAOKE/NORMAL/PBC OFF mode.
KARAOKE mode : one track playing mode.
NORMAL mode : continuous plural tracks playing mode. Required also for the Playback Control (PBC) function.
PBC OFF mode : inhibits the Playback Control (PBC) function of the video CD.

❺ **DIGITAL ECHO knob**
adjusts the degree of the echo effect for the microphone (1 through 3) and the wireless microphone voice.

❻ **MIC1 to MIC3 knobs**
adjusts volume of the microphone corresponding to MIC number.

❼ **PHONE jack**
used for connecting stereo headphones. The volume is set to a predetermined level and is not adjustable.

❽ **KEY CONTROL jack**
used for connecting a microphone with key control function.

❾ **MIC jacks (1 through 3)**
used for connecting microphones (1 through 3). The jacks correspond to MIC 1 to 3 volume knobs located above.

## Center front panel of the Player

❿ **DISC1 to DISC3 trays**
used to load discs. To insert/remove one or up to three (3) discs, press the ▲ OPEN/CLOSE button located at the right of the tray corresponding to disc number.

⓫ **BOOKMARK button**
Place a "bookmark" at a video segment you want to find later for almost instant play. (See page 12.)

⓬ **SURROUND button**
Changes the surround mode. (See page 12.)

⓭ **VOCAL REPLACE button**
activates the vocal replace function, which inserts your voice in place of the vocals on the disc.

⓮ **Display window**
shows information about the status of operation.

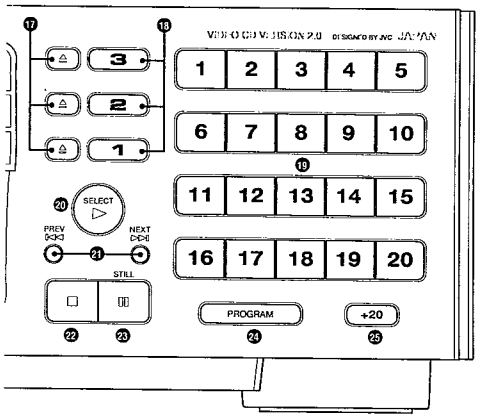
⓯ **VIDEO INTRO button (R)**
applies to video CDs only. The introductory five (5) seconds of tracks on a video CD are displayed on the television screen in order to present the contents of the video CD. (See page 11.)

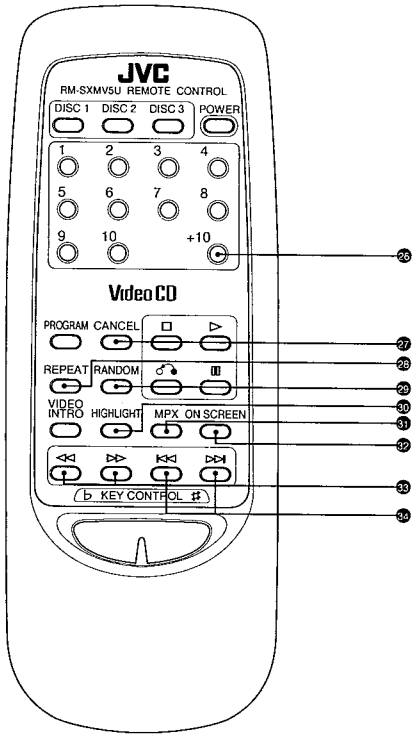
⓰ **RETURN button (R)**
Utilized for operation with the PBC function. This button is used to return to a menu screen during play. (See page 14.)

## Right front panel of the Player

⓱ **▲ (OPEN/CLOSE) buttons (Disc number 1 to 3)**
Used to open and close disc trays 1 to 3 respectively. When, after opening the DISC1 tray, another ▲ (OPEN/CLOSE) button is pressed, the DISC1 tray is first closed, then the other DISC tray selected is opened.

⓲ **DISC1 through DISC3 buttons with indicators (Green) (R)**
plays the disc of the number indicated on the button. As soon as the disc begins playing, the indicator blinks.




**⑱ Number keys (1 to 20) (R:1 to 10)**
used to specify a track number for playing, changing, or programming. To operate numbers above twenty (20), press the +20 button once. The number keys (1 to 20) are then assigned 21 to 40 numbers instead of 1 to 20. The maximum key number assignment is 99. In PBC function operation, the number keys are additionally utilized for the selection of menu items. See page 14 "Operation of Playback Control function".

**⑳ ► SELECT (PLAY) button (R)**
Starts to play the disc with/without the Playback Control function.

**㉑ I◄◄ / ►►I PREV / NEXT buttons**
During operation with the Playback Control function
invokes previous or next screen.
During operation without the Playback Control function
skips forward or backward quickly from current track being played. When pressed and held down, play fast backward/forward. See page 8.

**㉒ ■ (STOP) button (R)**
Stops play.

**㉓ II STILL (PAUSE) button (R)**
temporarily suspends playing. Video motion freezes and audio reproduction stops. Pressing the button repeatedly advances the picture frame-by-frame. (Video CD only)

**㉔ PROGRAM button (R)**
Any desired sequence of tracks can be programmed with the number keys and the +20 button. (on the remote control please use +10) The program button is not available while the Playback Control function is activated.

**㉕ +20 button**
used to shift the numbers assigned to the number keys to 21 or higher (maximum 99).

## On the remote control unit

**㉖ +10 button**
used to shift the numbers assigned to the number keys to 11 or higher (maximum 99).

**㉗ CANCEL button**
cancels the latest track you have programmed. The latest programmed track is canceled whenever you press this button. Also used to cancel a bookmark.

**㉘ REPEAT button**
repeats a track or inserted discs from 1 to 3.

**㉙ RANDOM button**
changes the disc track program to a random sequence from DISC 1 through 3 respectively.

**㉚ HIGHLIGHT button**
applies to a video CD to see highlights of a track. Displays the first (5) seconds of each of nine (9) equal-time segments of the track.

**㉛ MPX button**
activates the multiplex function, which switches to NORMAL (stereo), L-ch monoral and R-ch monoral.

**㉜ ON SCREEN button**
controls whether or not control and operation status are displayed on the television screen or monitor.

**㉝ ◄◄ / ►► MANUAL SEARCH button**
shifts the playing location backward and forward quickly. Holding down the button causes it to go much faster.

**㉞ I◄◄ / ►►I AUTO SEARCH button**
skips forward or backward from a current track. Holding down the button causes it to skip tracks much faster.

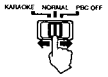


# BASIC OPERATIONS

## Now you can play a variety of video CDs!!

### Overview of the three modes

This Player has three (3) modes called KARAOKE, NORMAL, and PBC OFF mode. These are selected by the MODE switch. This enables various ways of playing a video CD.



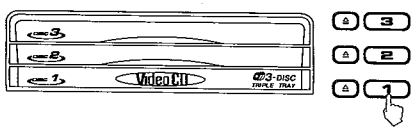

**KARAOKE mode:** One track playing mode. Whenever one track has completed play, the Player stops.
**NORMAL mode:** Continuous plural tracks playing mode. The Player plays tracks continuously in the order they appear on the disc.
**PBC OFF mode:** This mode is identical to the NORMAL mode, except that the PBC function is inhibited.

To set the mode, switch the MODE switch on the left side of the front panel.

### Triple disc tray usage

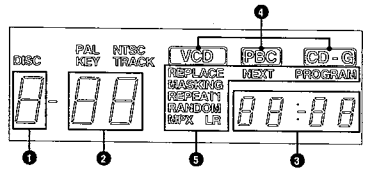
Up to three (3) discs can be loaded in the Player. You may insert a disc into any of the disc trays 1 through 3 whichever you prefer.
If you want to play only a specified disc, press the corresponding disc 1, 2 or, 3 button located to the right of the ▲ (OPEN/CLOSE) button.

When three discs are in inserted, basic order of playing is as following.
- Pressing DISC 1: DISC 1 → DISC 2 → DISC 3 → STOP
- Pressing DISC 2: DISC 2 → DISC 3 → DISC 1 → STOP
- Pressing DISC 3: DISC 3 → DISC 1 → DISC 2 → STOP




### Description of the display window

The display window indicates many aspects of control and operation status.



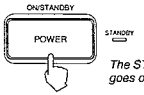

❶ Shows the disc number being played.
❷ Shows mainly the total number of tracks and the track number being played.
❸ Shows the surround mode status and the cumulative time (minutes and seconds) of the track and afterward, total time of the disc is displayed.
❹ The combination of VCD, PBC, and CD-G indicators lit shows the type of disc being played.
❺ Each indicator in this area lights when the corresponding function is activated.

English

## Preparation for playing

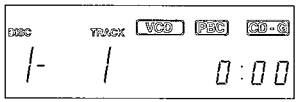
**Turn on the television set, amplifier or receiver to which the Player is connected, and then select the proper channel and mode to operate the Player, and set the sound volume to a reasonable level.**

**Press the POWER button on the front panel or remote control.**




*The STANDBY indicator goes out.*

The display window shows the initial information as shown below.




**Easy start up**

Without pressing the POWER button you can start up the Player by pressing ► SELECT button or disc buttons.

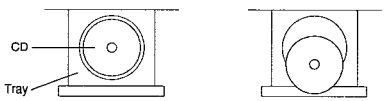
## Inserting/removing the disc(s)

**Press the ▲ (OPEN/CLOSE) button (1 through 3) to open the disc tray. Then place the disc in the round recess of the tray with label side up. To close the tray, press the ▲ (OPEN/CLOSE) button again.**

If you press the ▲ (OPEN/CLOSE) button of the playing disc, the Player stops and then opens the tray.
If you press the ▲ (OPEN/CLOSE) button of a disc that is not being played, you can change discs without stopping play.

*Notes*

- When loading a disc in the disc tray, be sure to position the disc inside the recess. Otherwise, the disc will be damaged when the disc tray is closed, and the disc cannot be removed from the unit.




## Starting to play disc(s)

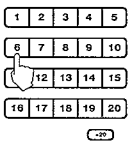
**Press the ► SELECT (PLAY) button. The Player starts to play from the disc indicated in the Display window.**
**Press one of the DISC 1 through 3 buttons and the Player plays the disc you pressed, from the 1st track. For individual track selection, use the number keys or the I◄◄/ ►►I PREV/NEXT buttons.**

When you start play, the Display window shows disc number and the track number being played.
During play, the indicator on the DISC button blinks.
If the PBC function is activated, the display window shows "Pb" until you play a track, and the television screen shows the initial menu, DISC number, and "PBC". See page 18, "Operation of Playback Control function".
When you press ► SELECT button during play, the disc will restart from the beginning of the track except when the PBC function is activated.

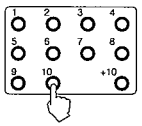
## Using number keys

**Press the number keys to select numbers.**

**On the Player**..... 1 to 20 and +20 key
Example: For number 5, press 5. For number 15, press 15. For number 32, press +20 button, then 12. For number 42, press +20 twice, then 2.




**On the remote control** ..... 1 to 10 and +10 key
Example: For number 5, press 5. For number 15, press +10, then 5. For number 20, press +10, then 10. For number 32, press +10 three times, then 2.




*Note*

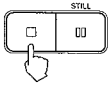
When you press number keys, track will start playing without pressing ► SELECT button.





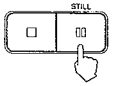
## Stopping play

**Press the ■ (STOP) button to stop play at any time.**




## Pausing play

**Press the II STILL (PAUSE) button to temporarily suspend play.**




*Notes*

- When the II STILL (PAUSE) button is pressed once, "PAUSE" appears on the television screen, the video motion freezes and the sound is turned off. The still picture advances frame-by-frame each time the II STILL (PAUSE) button is pressed. This frame-by-frame function is effective only for video CDs.
- To release the pause, press the SELECT or blinking DISC 1 through 3 button.
- During "PAUSE" the time counter on the display will blink.

## Auto search/Manual search

On the Player, during play, pressing the I◄◄ button once causes the Player to replay the current track from the beginning. Pressing the I◄◄ button twice causes the Player to play the previous track. Pressing the ►►I button once causes the Player to skip to the next track. Holding down the I◄◄/►►I buttons causes the disc to fast reverse or forward.

On the remote control, holding down the ◄◄/►► buttons causes the disc to fast reverse or forward.
Continuing to hold down the buttons causes it to search much faster.

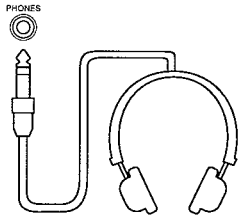
*(Remote control)*

**On the remote control, during play, pressing the I◄◄ button once causes the Player to replay the current track from the beginning. Pressing the I◄◄ button twice causes the Player to play the previous track. Pressing the ►►I button once causes the Player to skip to the next track.**

*(Remote control)*

## Using stereo headphones

**Connecting stereo headphones**
Connect stereo headphones to the PHONES jack at the lower-left of the front panel. The volume level is fixed and cannot be adjusted.



# VARIOUS UNIQUE FUNCTIONS

## Various functions can enhance your enjoyment

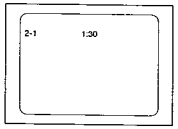
### Display of operations status

Preparation
This function is controlled by the remote control.

Operation
**Press the ON SCREEN button on the remote control. By pressing the ON SCREEN button, the following information may be easily and quickly displayed or vanished on the television screen.**

Time, Disc mode, Echo effect, Key control, Program, Repeat, Random, Multiplexing, Vocal replace, Vocal masking, Bookmark, etc.

(Remote control)



(Television screen)

### Programming the track sequence you want

Preparation
It is not possible to enter programming mode during play.Verify whether the Player is playing. If playing, stop the player with the ■ STOP button.

Operation
1. **Press the PROGRAM button to enter the programming mode.**
   "PROGRAM" is displayed in the display window.

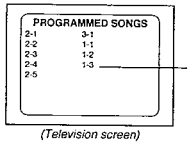
2. **Specify the disc by the DISC (1 through 3) button and then the track by the number keys successively. You can program up to nine (9) tracks by repeating this procedure.**
3. **To play the programmed track press the ► SELECT (PLAY) button.**

*Notes*
- The track number playing, next track programmed, and number of programmed tracks are displayed from the left-top of the television screen. You may use the ON SCREEN button to delete this information.
- Once the programmed track is played, it is deleted from the program.
- You may continue to program even while the disc is playing.

### Canceling a programmed track

Operation
**There are three (3) canceling functions (canceling the last programmed track, canceling the current track, canceling the next track to be played).**

- **To cancel the last programmed track press the CANCEL button on the remote control and the last programmed track will be canceled. This can be done while a disc is playing.**



The number located lowest is the latest track programmed.
(Television screen)

- **To cancel the current track press ■ STOP button.**
- **To cancel the next track, wait until the current track has finished and press the ►►I button and the next track will be canceled and the unit will go to the next programmed track.**

*Note*
To verify the track you programmed, stop the Player and see ON SCREEN information





### Clearing a program

**To delete all programmed tracks you have entered, press the ■ STOP button and then the PROGRAM button. "PROG OFF" will be displayed on the television screen.**

*Note*
The Player does not cancel the track program even if the ■ (STOP) button is pressed. Pressing the ► SELECT (PLAY) button again causes the Player to resume playing from the next track.

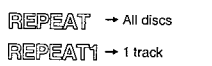
### Repeating tracks

It is possible to repeat all discs or only a single track.

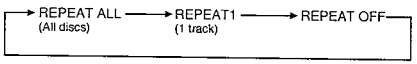
Preparation
This function is controlled by the remote control.

Operation
**By pressing the REPEAT button, channel REPEAT modes are cycled as shown below.**

(Remote control)



(Display window)



(Television screen)

*Notes*
- When playing a programmed sequence of tracks,only one track repeat is available.
- Only REPEAT1 is available in KARAOKE mode.
- The Repeat function is not available when the player is set to PBC ON.
- Only REPEAT ALL is available in RANDOM mode.

### Randomly playing tracks

Preparations
- This function is controlled by the remote control.
- The RANDOM button is effective only in NORMAL/PBC OFF mode.
- This function plays tracks randomly from a single disc.

Operation
1. **Stop the Player.**
2. **Press the RANDOM button and random playing will start.**
   "RANDOM" is displayed in the display window.

(Remote control)

3. **To cancel random playing, after stopping the Player [■ (STOP) button], press the RANDOM button again.**

(Remote control)

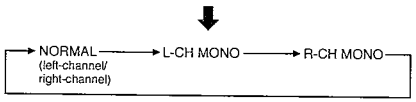
*Note*
- Random is not effective in program or KARAOKE mode.
- Only REPEAT ALL is available when in RANDOM mode.

### Playing a multiplex sound CD

This function is used for multiplex sound discs.

Operation
**By pressing the MPX button, channel multiplexing modes are cycled as shown below.**

(Remote control)



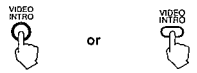
(Television screen)

English

## Viewing the VIDEO INTRO of a video CD

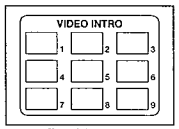
**Preparation**
When you play a video CD with the Playback Control function, the mode switch is recommended to be in the PBC OFF mode or KARAOKE mode.

**Operation**
1. **Play the disc you want to see a digest of.**
2. **Press the VIDEO INTRO button on the Player or the remote control just after starting disc play. Then the Player starts to display in sequence the first five (5) seconds and track numbers of all tracks on the disc.**



*(Remote control)*

3. **To select a track during digest display, press the number key corresponding to the item number on the television screen.**



*(Television screen)*

## Programming during VIDEO INTRO

**Operation**
1. **Stop play.**
2. **Press the PROGRAM button so that PROGRAM is lit in the display.**
3. **Press the disc button you want to play, and enter 1 on the keypad.**
4. **Press the ► button and then, after the disc has started to play, press the VIDEO INTRO button.**
5. **The Player starts to display in sequence the first five (5) seconds and track numbers of all tracks on the disc. Select the number you want to program. You can program nine (9) tracks.**
6. **Press the ► button to play.**

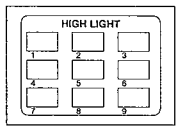
## Viewing the highlights of a video CD

This function is used for a movie video CD.

**Preparations**
- When you play a video CD with the Playback Control function, the mode switch is recommended to be in the PBC OFF mode or KARAOKE mode.
- This function is controlled by the remote control unit.

**Operation**
1. **Start playing the track you want to see the highlights of.**
2. **After the track begins to play, press the HIGHLIGHT button on the remote control.**

*(Remote control)*



*(Television screen)*

3. **To select one of the nine (9) segments, press the number key (1 to 9) of the segment which you want to play.**

***Notes***
- When you choose a highlight it will start from five (5) seconds before the shown time below each segment.
- The highlights show the proceeding five (5) seconds up to the displayed time on each highlight.
- The segments are each of nine (9) equal-time period divisions of the track.
- Nine (9) different highlights are displayed for one (1) minute.
- If no highlight is choosen in the one (1) minute period in normal mode or PBC OFF mode the next nine (9) segment highlights will begin, in KARAOKE mode highlights will stop.
- While in VIDEO INTRO or HIGHLIGHT, sometimes image is garbled partially. This symptom is caused by noise in the disc itself or incorrect manufacturing, it is not caused by a malfunction of the Player.





## Selecting the surround mode

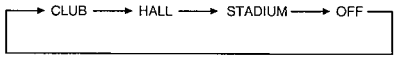
You can change the sound ambiance using the Surround function.

**Operation**
1. **Choose from among the following three surround modes to change the disc mood.**

**CLUB:** A more intimate sound with greater resonance and bass.
**HALL:** Enhances the mid-frequency range (which the human voice occupies), imitating the effect achieved in a concert hall.
**STADIUM:** Adds presence and spreads the sound, like in a stadium.

2. **To select the surround mode, push the SURROUND button until the name of the desired sound mode appears on the television screen and in the display window.**

**Each time you press the button, you toggle the mode as follows:**



*(Television screen)*

3. **To cancel the effect, press the SURROUND button until the word "OFF" appears on the television screen.**

***Note***
- When the Player is in one of the three Surround modes, you cannot use the key control, digital echo, vocal replace and MPX functions.

# Playback with the Bookmark function

## Marking a segment for later viewing with the Bookmark function

The Bookmark function lets you mark a segment of a Video CD, so that you can have almost instant playback of a desired scene later.

Even if you take the disc out of the player, its bookmark will stay recorded for later use, until you erase them, or disconnect the power cord.

**Operation**
**While playing the disc, press the BOOKMARK button at the segment you want to mark for later playing.**

***Notes***
- The Bookmark function works only with Video CDs.
- You can register one bookmark in a single disc and registration for up to ten discs is possible.
- The Bookmark function is most easily used when the Player is in PBC OFF mode.
- If you mark a segment when the Player is set for the Playback Control (PBC) function, the mark is placed at the beginning of the scene.
- The Bookmark function does not work in Random and Program modes.
- When you disconnect the power cord, Bookmark registration is erased.

## Playing the segment you marked

**Press the BOOKMARK button when playback is stopped.**

## Canceling the bookmark

**After pressing the BOOKMARK button to start playing the segment you marked, press CANCEL button.**

*(Remote control)*

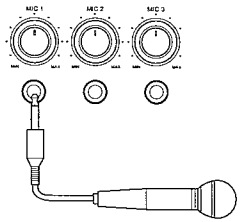
English

# Using a microphone

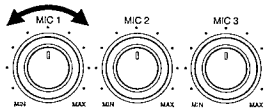
## Using a wired microphone

Operation

1. Insert the connector cable to the end of the microphone.
2. Up to three (3) microphones can be connected to the MIC jacks on the front panel.




3. Switch the microphone's power on.
4. Turn the MIC 1 through MIC 3 knobs clockwise (level up) or counterclockwise (level down) as desired.



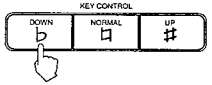

**ATTENTION**

When you are not using the microphone, it is recommended to set the MIC switch to OFF; otherwise the batteries will discharge even when not in use.

## Adjusting music key

**Press the KEY CONTROL buttons ( ♭ or #) to change the key in which the music plays. To return the music to its original key, press the NORMAL button.**

You can adjust the music on the remote control unit also.




*Notes*

- The degree the key has been sharpened or flattened is displayed on the television screen.
- When the song ends the key control will return to NORMAL mode automatically.

## Adjusting echo effect

**Turn the DIGITAL ECHO knob clockwise (level up) or counterclockwise (level down) to adjust the echo effect as desired.**

## Vocal replace

**Preparation**

This function is used for multiplex sound discs.

Operation

1. **Press the VOCAL REPLACE button during play or stop. REPLACE will appear on the display window and VO.REPLACE will appear on the television screen. When you start singing, the vocal of the disc is removed and your voice is inserted into the music.**

2. **To cancel voice replacement, press the VOCAL REPLACE button again.**

*Note*

- You cannot use the Vocal Replace function with a disc that has vocals recorded on the left channel.

**ATTENTION**

**Be sure to remove the microphone**

Note when connecting the sound output to the input of a TV or VCR: If an excessively strong signal is given to a unit through a microphone, for example when using Karaoke, it may cause an adverse effect such as distorted sound. Lower the sound volume using the microphone control.

**Karaoke etiquette**

Be aware of your neighbors when enjoying karaoke music. Particularly late at night, the sound you enjoy may reach your neighbors more than you expect. Common sense and courtesy are always appreciated.



# OPERATION OF PLAYBACK CONTROL FUNCTION

## Playing Video CDs with Playback Control function

This Player provides a Playback Control function which utilizes a procedure (menu selection) programmed in a video CD. The playback operation procedure may differ depending on the disc you use.

The Playback Control function is described below and in the figure.

- High-resolution still image display - Super-fine reproduction of still images with more than 4 times the resolution of video tape.
- Menu-driven playback - interactive menus for easy selection of tracks

**Preparations**

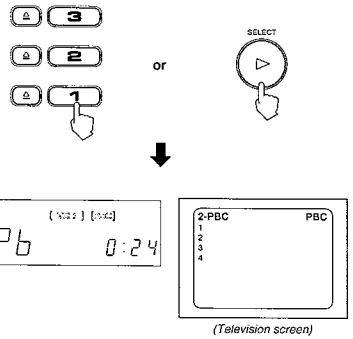
- A video CD with the Playback Control function is required for this operation.
- Only the NORMAL mode can be used.
- The buttons available for use are the number keys, the ⏮/⏭ PREV/NEXT buttons, ► SELECT button, DISC (1 through 3) buttons, and ↶ RETURN button.

**Button functions**

| | |
|---|---|
| Number keys (Including +20 button and +10 button) | Select a specific menu item from the television screen or monitor. |
| ⏮/⏭ PREV/NEXT buttons | Move through menu. |
| ► SELECT button | Starts up a video CD with the PBC function in DISC tray 1 to 3. |
| DISC (1 through 3) buttons | Start up a video CD with the PBC function in the specified DISC tray. |
| ↶ RETURN button | Returns to the menu. |

Operation

1. **Verify that the Player is in NORMAL mode.**
2. **Press the DISC (1 through 3) or ► SELECT button, and then the Player starts up the PBC function. "Pb" is shown in the Display window. The main menu, "PBC", and disc/track number are displayed on the television screen.**




*(Television screen)*

3. **To move through the menus, press the ⏮/⏭ PREV/NEXT buttons.**

4. **When the menu you want appears, select an item in the menu by using the number keys. The numbers on the number keys correspond to the menu item numbers.**
5. **To return to a menu and stop the track being played, press the ↶ RETURN button.**

*Notes*

- Page numbers in the menu show that preceding pages exist. To move from the current menu, press the ⏮/⏭ PREV/NEXT buttons.
- If you have no desire to use the PBC function when playing a disc with the PBC function, switch the MODE switch to "PBC OFF" before playing.
- When you change the mode switch except NORMAL mode during play Playback Control disc, the play stops, so reset again from the beginning.
- If you press number keys directly to select the track, you can't enter the Player into PBC mode.

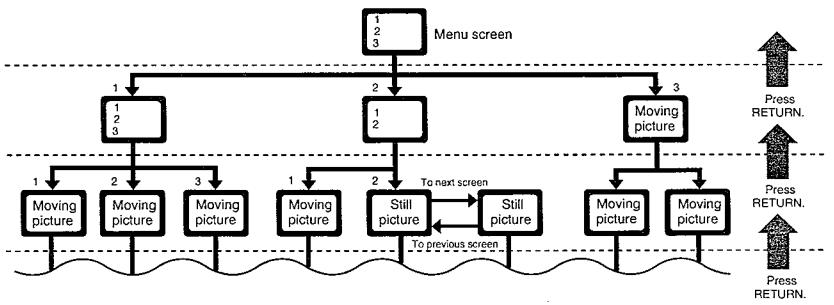
English

## Video CD with Playback Control function

**What is Playback Control function?**
The Playback Control function, ushering a new video CD age, allows you to enjoy menu-driven operation and high-resolution still images having a resolution four times greater than moving pictures.

- **Menu-driven playback**
  You can interact with the screen using a menu display to select and play an entry.
- **High-resolution still image display**
  You can display high-quality images four times clearer than moving pictures.

**Example of playback by the Playback Control function**




A selection menu is displayed when you start playing a video CD disc with the Playback Control feature. The selection menu shows a list of numbers for selection. Some discs may show moving pictures or a divided screen.

1. When a list of numbers is displayed, selecting a number shows its contents.
2. When a moving picture is displayed, pressing SELECT at the time when a part of the movie you desire is shown plays the movie.
3. When the selection menu is redisplayed after you have played your selection, selecting a number again can replay its contents. (Some discs may show the menu screen several times.) When "Next" and "Prev" are shown, pressing "NEXT" or "PREV" can change the selection menu.
4. After playback, press RETURN to go back to the previous screen.

***Note***
When a menu is displayed for a long time, about 10 minutes, the screen background automatically fades out to prevent screen burn-in while the setting is suspended.



# GRAPHIC/DIGITAL AUDIO CDs

## Playing CD Graphics/ digital audio CDs

### Playing CD Graphics

Basic video CD-playing procedures apply although the pictures are still. A CD Graphics is identified by "CD-G" shown on the display.

***Notes***
- The following operations may distort the image on the screen.
  Searching for starting point of music
  Fast forwarding/reversing
  Stop/pause
- If paused, the screen changes to blue in a few minutes. This is to prevent burn-in of the TV screen.

### Playing digital audio CDs

Basic video CD-playing procedures apply to the reproduction of sound.

***Note***
No indicator will turn on to show the type of the disc on the display.

# SPECIFICATIONS

## Main specifications

**XL-MV338BK**

| | | |
|---|---|---|
| Model | Video CD player | |
| Playback disc | Video CD (with/without Playback Control function)<br>CD Graphics<br>Digital Audio CD | |
| Total harmonic distortion | 0.01% (1kHz) | |
| S/N ratio | 93 dB | |
| Frequency response | 20Hz – 20kHz | |
| Input terminal | Microphone | 2 mV (9.1 k ) |
| Output terminal | Line output | 2.0 Vrms (full scale) |
| | Image output<br>Video (composite) | 1.0 Vp-p (75 ) |
| Echoing | Digital echoing | |
| Power requirements | AC 115-127/220-240V ∿, 50/60Hz<br>adjustable with the voltage selector | |
| Power consumption | 22 watts<br>5 watts (in standby mode) | |
| Mass | | 5.3 Kg (11.7 lbs) |
| Dimensions | | 447x 127 x 340.3 mm<br>17-11/16 x 5 x13-7/16 inches |

**Accessories**

- AC power cord ..... 1
- Audio Video cord ..... 1
- Remote control unit (RM-SXMV5U) ..... 1
  - Batteries (R03(UM-4)/AAA(24F)) ..... 2



# TROUBLESHOOTING

## Troubleshooting

What appears to be a malfunction may not always be serious. Please go through the following list before requesting service.

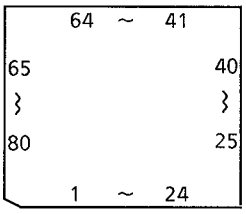
| Symptom | Possible cause | Remedy |
|---|---|---|
| Power does not come on. | Power plug is disconnected from AC outlet. | Firmly connect the plug to AC outlet. |
| | Battery is exhausted. | Replace the battery with a new one. |
| Remote control does not work. | The tip of the remote controller is not pointed at the right receiving part of the player. | Use the remote control correctly. |
| No image is displayed on the monitor. | The video cable is not connected. | Firmly connect the cable. |
| | The TV is not set in video mode. | Set the TV in video mode. |
| | An incompatible disc is loaded. | Load a disc compatible with the player. |
| Playback does not start. | No disc is loaded. | Load a disc. |
| | Disc is loaded upside down. | Reload the disc with the label up. |
| Speaker does not produce sound. | Audio cable is not connected. | Firmly connect the cable. |
| | Operation of the external amplifier is wrong. | Operate the amplifier correctly. |
| Sound is distorted or noise is generated.<br>Image is garbled. | Disc is dirty. | Wipe off the disc surface with a soft cloth. |
| | Connection is wrong. | Correctly connect cables. (See page 2.) |
| Sound is intermittent.<br>Image is garbled. | Disc is dirty. | Wipe the disc surface with a soft cloth.<br>(See page 1) |
| | Disc is scratched. | Replace the disc with a new one. |
| | Disc is warped. | |
| Disc tray does not come out when OPEN/CLOSE button is pressed. | Power plug is disconnected from the power outlet. | Firmly insert the plug into the outlet. |
| Operation is not possible. | Microcomputer malfunctions due to lightning or static electricity. | Turn off the power, then on again. |

The malfunction may be caused by a device other than the player. Check other devices connected to the player.

# Description of Major ICs

## ■ MD6433726SD43F(IC201) : SYSTEM MICON

### 1.Pin Layout




### KEY INPUT

| PIN NO. | INPUT |
|---|---|
| P.SW (53PIN) | POWER (S951) |
| FM SW (53PIN) | FM ON (S952) |
| KEY UP (49PIN) | KEY UP (S956) |
| KEY NOR (50PIN) | KEY NOR (S957) |
| KEY DN (51PIN) | KEY DOWN (S958) |

### KEY matrix

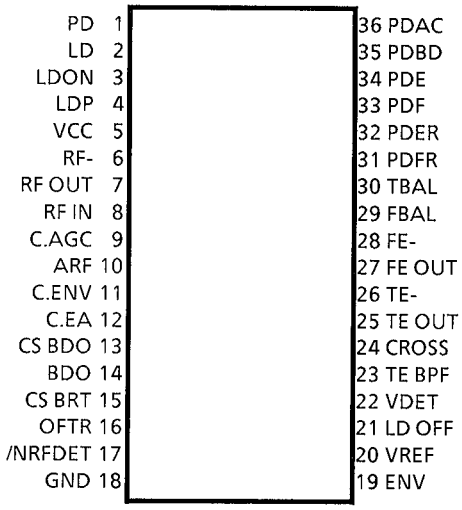
| IN / OUT | KEY IN5 (25PIN) | KEY IN4 (26PIN) | KEY IN3 (27PIN) | KEY IN2 (28PIN) | KEY IN1 (21PIN) |
|---|---|---|---|---|---|
| 8G/KEYO 0 (41PIN) | 1 (S921) | 2 (S922) | 3 (S923) | 4 (S924) | 5 (S925) |
| 7G/KEYO 1 (42PIN) | 6 (S926) | 7 (S927) | 8 (S928) | 9 (S929) | 10 (S930) |
| 6G/KEYO 2 (43PIN) | 11 (S931) | 12 (S932) | 13 (S933) | 14 (S934) | 15 (S935) |
| 5G/KEYO 3 (44PIN) | 16 (S936) | 17 (S937) | 18 (S938) | 19 (S939) | 20 (S940) |
| 4G/KEYO 4 (45PIN) | ⏸ (S920) | ■ (S919) | -- | PROGRAM (S941) | +20 (S940) |
| 3G/KEYO 5 (46PIN) | -- | MPX (S903) | ⏮ (S918) | DISC1 ⏏ (S908) | DISC 1 (S911) |
| 2G/KEYO 6 (47PIN) | RETURN (S905) | VOCAL MASKING (S902) | ⏭ (S917) | DISC2 ⏏ (S907) | DISC 2 (S910) |
| 1G/KEYO 7 (48PIN) | INTRO (S904) | VOICE CHANGE (S901) | ▶ (S916) | DISC3 ⏏ (S906) | DISC 3 (S909) |

### 2. Description

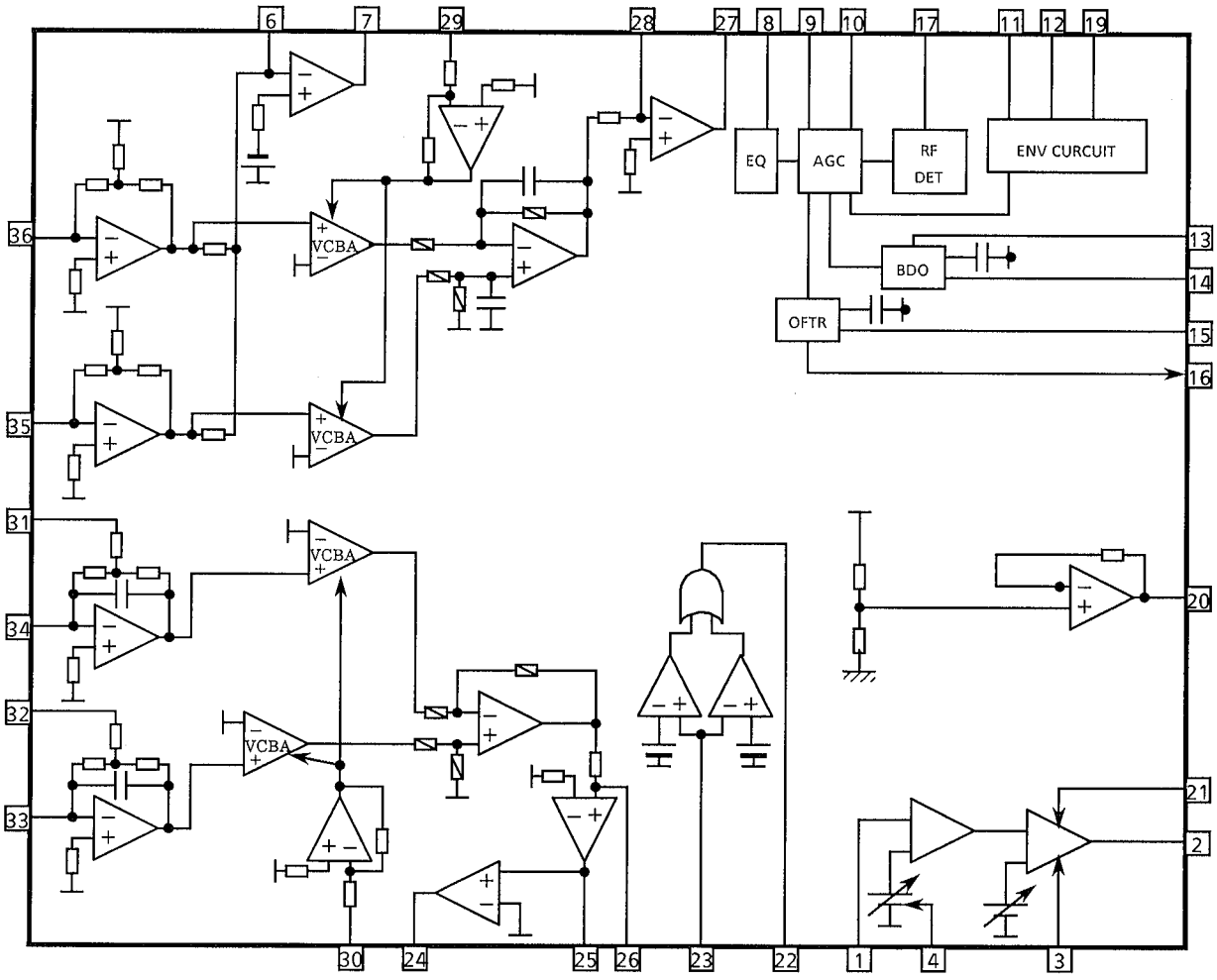
| Pin No. | symbol | I/O | Description | Pin No. | symbol | I/O | Description |
|---|---|---|---|---|---|---|---|
| 1 | $\overline{\text{FLOCK}}$ | I | Tracking lock signal input | 50 | $\overline{\text{KEY NOR}}$ | I | KEY NOR key input |
| 2 | $\overline{\text{TLOCK}}$ | I | Focus lock signal input | 51 | $\overline{\text{KEY DN}}$ | I | KEY DN key input |
| 3 | SENSE | I | Sense signal input | 52 | $\overline{\text{P.SW}}$ | I | POWER key input |
| 4 | TVSW | I | PALL NTSC select terminal | 53 | $\overline{\text{FM.SW}}$ | I | FM key input |
| 5 | AVSS | -- | (Pull up) | 54 | NC | -- | Not use |
| 6 | TEST | -- | (Pull down) | 55 | FM.P.ON | O | FM POWER control output |
| 7 | X2 | -- | Not use | 56 | $\overline{\text{FMMUTE}}$ | O | FMMUTE control output |
| 8 | X1 | I | (Pull up) | 57 | +5V | -- | Power suplly (+5V) |
| 9 | GND | -- | GND | 58 | $\overline{\text{POWER ON}}$ | O | Power ON/OFF control output |
| 10 | OSC1 | -- | X'tal osillator connection | 59 | $\overline{\text{LSIRST}}$ | O | Reset signal output |
| 11 | OSC2 | -- | X'tal osillator connection | 60 | IFL | | IC301 |
| 12 | $\overline{\text{RESET}}$ | I | Reset signal input | 61 | IFS | | IC301 |
| 13 | HREQ | I | Communication signal input | 62 | IFD | O | Data for IC301 |
| 14 | $\overline{\text{RMIN}}$ | I | Remote signal input | 63 | OSDDT | O | Command data signal output for IC106 |
| 15 | C3DT | O | Command data signal output | 64 | OSDCLK | O | Command clock signal output for IC106 |
| 16 | C3CLK | O | Command clock signal output for IC | 65 | OSDCS | O | Chip select for IC106 |
| 17 | C3REQ | I | Command request signal | 66 | MREQ | O | Data trancefer request signal output |
| 18 | C3CS | O | Chip select for IC | 67 | SQCK | O | Out side clock terminal for Subcode Q resistor |
| 19 | NC | -- | Not use | 68 | SUBQ | I | Subcode Q code input |
| 20 | CS | I | Chip select terminal (Pullup) | 69 | VCDRST | O | Reset signal output |
| 21 | D3.IND | O | DICK3 indication ON/OFF signal output | 70 | SRCLX | O | |
| 22 | D2.IND | O | DICK2 indication ON/OFF signal output | 71,72 | M2HDT/H2MD | I/O | Serial data output |
| 23 | HRDY | I | Communication signal input | 73 | MLD | O | Command load signal output |
| 24 | D1.IND | O | DICK1 indication ON/OFF signal output | 74 | MDATA | O | Command data signal output |
| 25~29 | KEY IN1~5 | I | Key matrix input | 75 | MCLK | O | Command clock signal output |
| 30 | NC | -- | Not use | 76 | +5V | -- | Power suplly (+5V) |
| 31~39 | S1~S9 | O | FL segment control output | 77 | MODESW | I | MODE select terminal |
| 40 | -VDISP | -- | FL-Power suplly | 78 | ECHOVOL | I | ECHOVOL control input |
| 41~48 | 8G/KEYO0~ 1GKEYO7 | O | FL grid control output/Key matrix output | 79 | REST | I | Reset signal input |
| 49 | $\overline{\text{KEY UP}}$ | I | KEY UP key input | 80 | STAT | I | Status signal (IC603) input |

## ■ AN8806SB (IC601) : RF & SERVO AMP

### 1. Terminal Layout




### 2. Block Diagram

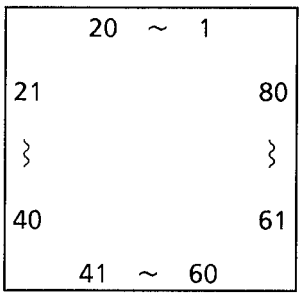


## 3. Functions

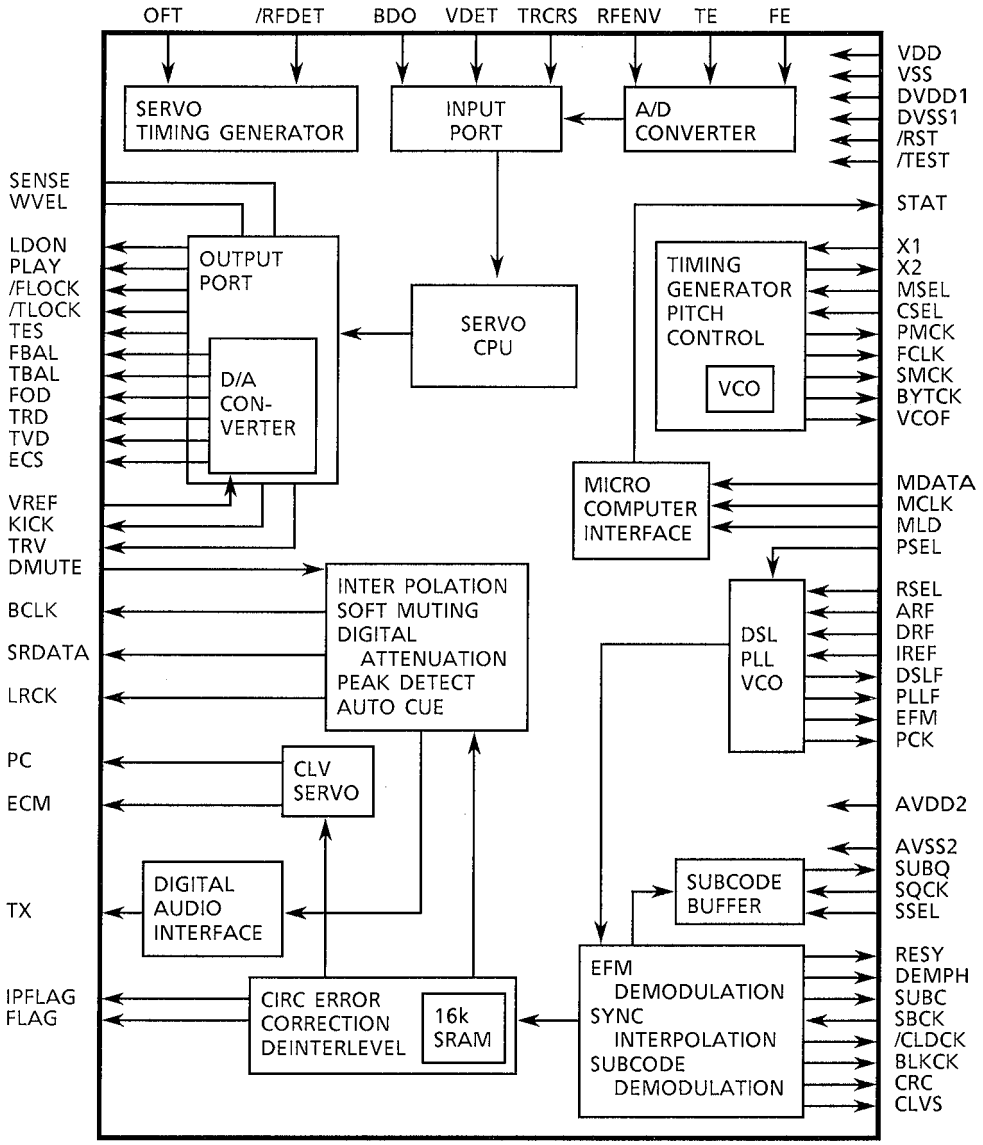
| Pin No. | Symbol | I/O | Functions and operations |
|---|---|---|---|
| 1 | PD | I | APC amp input terminal |
| 2 | LD | O | APC amp output terminal |
| 3 | LD ON | I | APC ON/OFF control terminal |
| 4 | LDP | -- | Connected to ground |
| 5 | VCC | -- | Power supply |
| 6 | RF- | I | Inverse input pin for RF amp |
| 7 | RF OUT | O | RF amp output |
| 8 | RF IN | I | RF input |
| 9 | C.AGC | I/O | Connecting pin of AGC loop filter |
| 10 | ARF | O | RF output |
| 11 | C.ENV | I/O | A capacitor is connected to this terminal to detect the envelope of RF signal |
| 12 | C.EA | I/O | A capacitor is connected to this terminal to detect the envelope of RF signal |
| 13 | CS BDO | I/O | A capacitor is connected to detect the lower envelope of the RF signal |
| 14 | BDO | O | BDO output pin |
| 15 | CS BRT | I/O | A capacitor is connected to detect the lower envelope of the RF signal |
| 16 | OFTR | O | Of-track status signal output |
| 17 | /NRFDET | O | RF detection signal output |
| 18 | GND | -- | Ground |
| 19 | ENV | O | Envelope output |
| 20 | VREF | O | Reference voltage output |
| 21 | LD OFF | -- | Connect to ground |
| 22 | VDET | O | Vibration detection signal output |
| 23 | TE BPF | I | Input pin of tracking error through BPF |
| 24 | CROSS | O | Tracking error cross output |
| 25 | TE OUT | O | Tracking error signal output |
| 26 | TE- | I | Inverse input pin for tracking error amp |
| 27 | FE OUT | O | Output pin of focus error |
| 28 | FE- | I | Inverse input pin for focus error amp |
| 29 | FBAL | I | Focus balance control |
| 30 | TBAL | I | Tracking balance control |
| 31 | PDFR | I/O | F I-V amp gain control |
| 32 | PDER | I/O | E I-V amp gain control |
| 33 | PDF | I | I-V amp input |
| 34 | PDE | I | I-V amp input |
| 35 | PD BD | I | I-V amp input |
| 36 | PD AC | I | I-V amp input |

## ■ MN662720RB (IC603) : DIGITAL SERVO & DIGITAL SIGNAL PROCESSER

### 1. Terminal Layout




### 2. Block Diagram

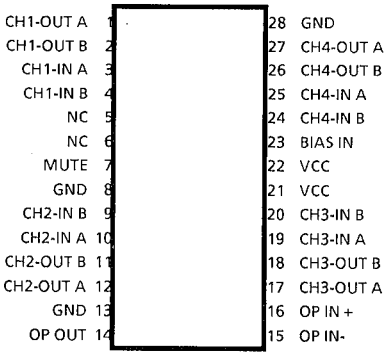


## 3. Description

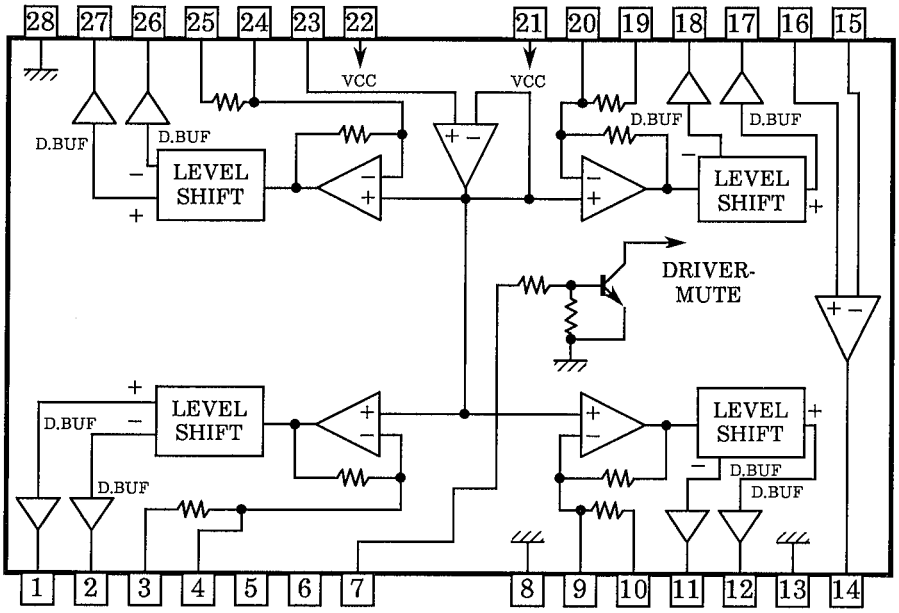
| Pin No. | symbol | I/O | Description | Pin No. | symbol | I/O | Description |
|---|---|---|---|---|---|---|---|
| 1 | BCLK | O | Bit clock output pin for SRDATA | 41 | TES | — | Not used |
| 2 | LRCK | O | L/R distinction signal output | 42 | PLAY | — | 〃 |
| 3 | SRDATA | O | Serial data output | 43 | WVEL | — | 〃 |
| 4 | DVDD1 | — | Power supply(Digital) | 44 | ARF | I | RF signal input |
| 5 | DVSS1 | — | Connected to GND(Digital) | 45 | IREF | I | Reference current input pin |
| 6 | TX | O | Digital audio interface signal | 46 | DRF | I | Bias pin for DSL |
| 7 | MCLK | I | μ-com command clock signal input (Data is latched at signal's rising point) | 47 | DSLF | I/O | Loop filter pin for DSL |
| 8 | MDATA | I | μ-com command data input | 48 | PLLF | I/O | Loop filter pin for PLL |
| 9 | MLD | I | μ-com command load signal input | 49 | VCOF | — | Not used |
| 10 | SENSE | O | Sense signal output (OFT,FESL,NACEND,NAJEND,POSAD,SFG) | 50 | AVDD2 | — | Power supply (Analog) |
| 11 | /FLOCK | O | Lock signal for Focus L : pull | 51 | AVSS2 | — | Connected to GND(Analog) |
| 12 | /TLOCK | O | Lock signal for Tracking L : pull | 52 | EFM | — | Not used |
| 13 | BLKCK | O | Subcode · block · clock signal output | 53 | PCK | — | 〃 |
| 14 | SQCK | I | Outside lock for sub-code Q resister input | 54 | PDO | — | 〃 |
| 15 | SUBQ | O | Sub-code Q-code output | 55 | SUBC | O | Subcode serial output data output |
| 16 | DMUTE | I | Muting input (H : MUTE) | 56 | SBCK | — | Clock input for subcode serial output |
| 17 | STATUS | O | Status signal (CRC,CUE,CLVS,TTSTOP,ECLV,SQOK) | 57 | VSS | — | Connected to GND(for X'tal cscillation circuit) |
| 18 | /RST | I | Reset signal input (L :Reset) | 58 | X1 | I | Input of 16.9344MHz X'tal oscillation circuit |
| 19 | SMCK | — | Not used | 59 | X2 | — | Not used |
| 20 | PMCK | — | Not used | 60 | VDD | — | Power supply(for X'tal cscillation circuit) |
| 21 | TRV | O | Traverse enforced output | 61 | BYTCK | — | Not used |
| 22 | TVD | O | Traverse drive output | 62 | /CLDCK | O | Subcode · Frame · Clock signal output |
| 23 | PC | — | Not used | 63 | FCLK | O | X'tal frame clock output |
| 24 | ECM | O | Spindle motor drive signal (Enforced mode output) 3-State | 64 | IPPLAG | O | Interpolation flag output H : Interpolation |
| 25 | ECS | O | Spindle motor drive signal (Servo error signal output) | 65 | FLAG | — | Flag output |
| 26 | KICK | O | Kick pulse output | 66 | CLVS | — | Not used |
| 27 | TRD | O | Tracking drive output | 67 | CRC | — | 〃 |
| 28 | FOD | O | Focus drive output | 68 | DEMPH | O | De-emphasis ON signal (H : ON) |
| 29 | VREF | I | Reference voltage input pin for D/A output block(TVD,FOD,FBAL,TBAL) | 69 | RESY | — | Not used |
| 30 | FBAL | O | Focus Balance adjust signal output | 70 | NC1 | — | 〃 |
| 31 | TBAL | O | Tracking Balance adjust signal output | 71 | /TEST | — | Pull up (+5V) |
| 32 | FE | I | Focus error signal input(Analog input) | 72 | AVDD1 | — | Power supply (Digital) |
| 33 | TE | I | Tracking error signal input(Analog input) | 73 | NC2 | — | Not used |
| 34 | RF ENV | I | RF envelope signal input(Analog input) | 74 | AVSS1 | — | Connected to GND |
| 35 | VDET | I | Vibration detect signal input(H : detect) | 75 | NC3 | — | Not used |
| 36 | OFT | I | Off track signal input(H : off track) | 76 | RSEL | I | Rf signal polarity appointed pin<br>Light level "H" → RSEL = H<br>Light level "L" → RSEL = L |
| 37 | TRCRS | I | Track cross signal input | 77 | CSEL | I | X'tal oscillation frequency appointed pin<br>L : 16.9344MHz H : 33.8688MHz |
| 38 | /RFDET | I | RF detect signal input (L : detect) | 78 | PSEL | I | Terminal of Test |
| 39 | BDO | I | BDO input pin (H : drop out) | 79 | MSEL | I | SMCK pin output of frequency select terminal<br>L :SMCK + 4.2336MHZ H :SMCK + 8.4672MHZ |
| 40 | LDON | O | Laser ON signal output (H : on) | 80 | SSEL | — | SUBQ terminal output mode select pin<br>H : Mode for Q code buffer |

## ■ BA6398FP (IC602) : BTL DRIVER

### 1. Terminal Layout




### 2. Block Diagram



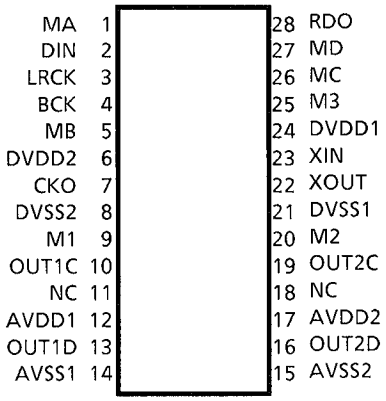

### 3.Description

| Pin No. | Symbol | I/O | Description |
|---|---|---|---|
| 1<br>2 | CH1-OUT A<br>CH1-OUT B | O | Focus drive output |
| 3 | CH1-IN A | I | Focus drive input |
| 4<br>5,6<br>10<br>19<br>24 | CH1-IN B<br>NC<br>CH2-IN A<br>CH3-IN A<br>CH4-IN B | — | Non connection |
| 7 | MUTE | I | Mute signal input pin |
| 9<br>20 | CH2-IN B<br>CH3-IN B | I<br>I | Spindle motor drive input<br>Feed motor drive input |
| 25 | CH4-IN A | I | Tracking drive input |

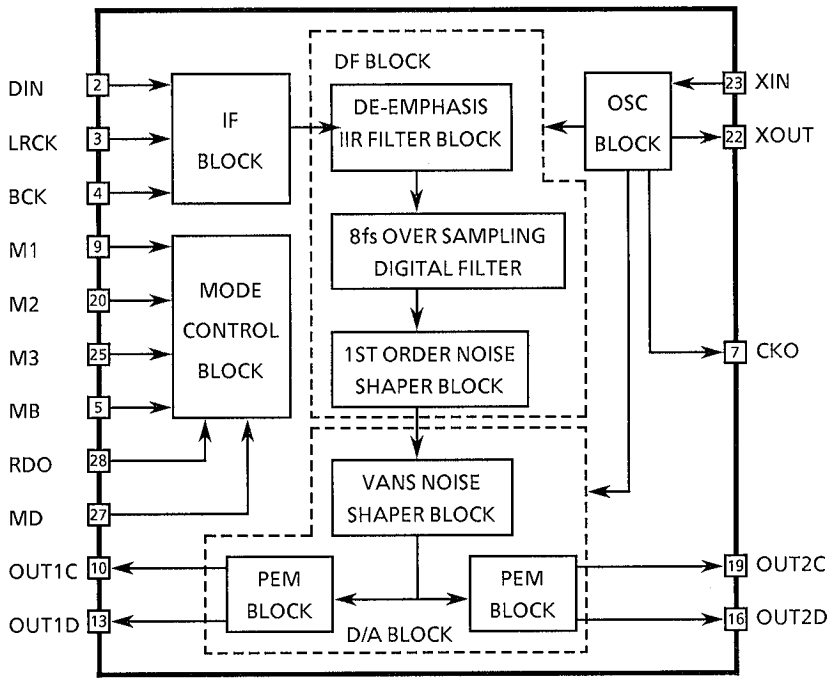
| Pin No. | Symbol | I/O | Description |
|---|---|---|---|
| 8,13,28 | GND | — | GND |
| 11<br>12 | CH2-OUT B<br>CH2-OUT A | O | Spindle motor drive output |
| 14 | OP OUT | O | OP amp output |
| 15,16 | OP IN | I | OP amp input |
| 17<br>18 | CH3-OUT A<br>CH3-OUT B | O | Feed motor drive output |
| 21,22 | Vcc | — | Power supply |
| 23 | BIAS IN | I | Input pin of Bias |
| 26<br>27 | CH4-OUT B<br>CH4-OUT A | O | Tracking drive output |

## ■ MN35503 (IC501) : D / A CONVERTER

### 1. Terminal Layout




### 2. Block Diagram




### 3.Description

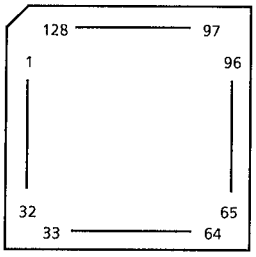
| Pin No | Symbol | I/O | Description | Pin No | Symbol | I/O | Description |
|---|---|---|---|---|---|---|---|
| 1 | MA | -- | Connected to ground | 15 | AVSS2 | -- | Analog ground 2 |
| 2 | DIN | I | Data input | 16 | OUT2D | O | 2D PEM output |
| 3 | LRCK | I | LR clock input | 17 | AVDD2 | -- | Analog power supply 2 |
| 4 | BCK | I | Bit clock input | 18 | NC | -- | Non connection |
| 5 | MB | I | De-emphasis ON signal | 19 | OUT2C | O | 2C PEM output |
| 6 | DVDD2 | -- | Digital power supply 2 | 20 | M2 | -- | Connected to ground |
| 7 | CKO | I | Clock output | 21 | DVSS1 | -- | Digital ground pin 1 |
| 8 | DVSS2 | -- | Digital ground 2 | 22 | XOUT | O | Crystal oscillator output |
| 9 | M1 | -- | Connected to ground | 23 | XIN | I | Crystal oscillator input |
| 10 | OUT1C | O | 1C PEM output | 24 | DVDD1 | -- | Digital power supply 1 |
| 11 | NC | -- | Non connection | 25 | M3 | -- | Connected to ground |
| 12 | AVDD1 | -- | Analog power supply 1 | 26 | MC | -- | Connected to ground |
| 13 | OUT1D | O | 1D PEM output | 27 | MD | I | Reset signal / Digital Att. control signal input |
| 14 | AVSS1 | -- | Analog ground 1 | 28 | RDO | -- | Not used |

■ CL480(IC101) : MPEG decoder

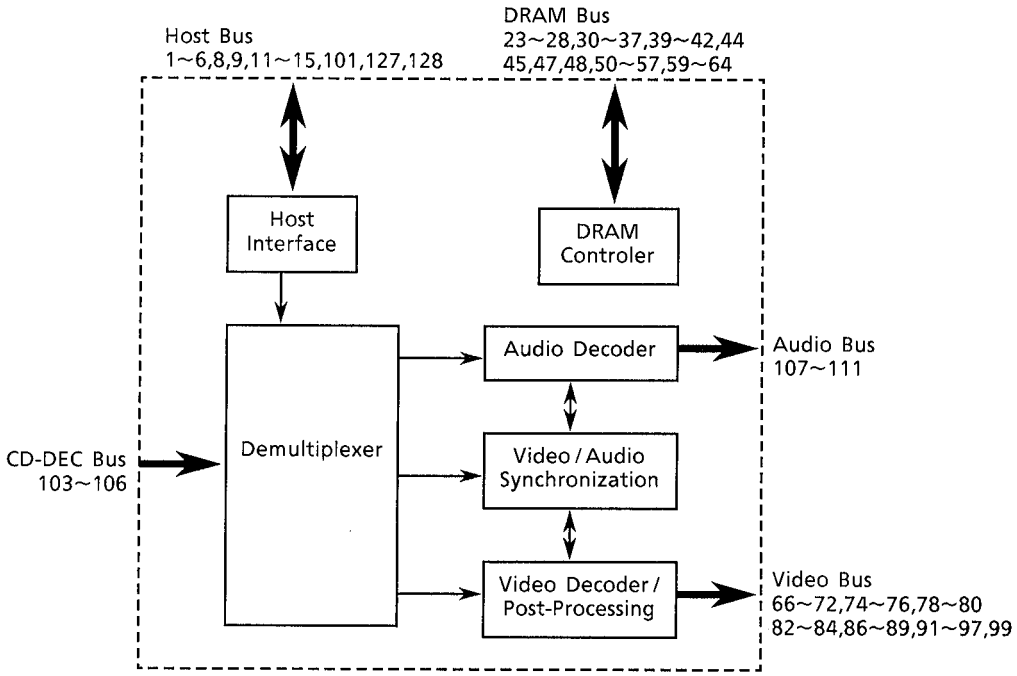
1. Functions

CL480 is MPEG-1 Audio / Video decoder

2. Terminal Layout




3. Block Diagram

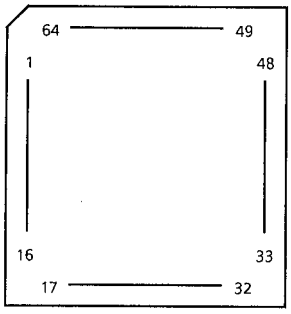


## 4. Terminal Discription

| Pin No. | symbol | I/O | Function | Pin No. | symbol | I/O | Function |
|---|---|---|---|---|---|---|---|
| 1 | HA2 | I | Host address terminal | 78~80 | VD10~ VD12 | O | Video data terminal (G2~4/Y2~4) |
| 2 | DS | I | Data strobe terminal | 81 | IO VDD | -- | Power suplly for Input /Output |
| 3 | W/R | I | I/O read terminal | 82~84 | VD13~ VD15 | O | Video data terminal (G5~7 / Y5~7) |
| 4 | IRQ | O | Interact terminal | 85 | CKT VSS | -- | Connected to GND |
| 5 | DTACK | O | Acknowledge data output | 86~89 | VD16~ VD19 | O | Video data terminal (B0~B3) |
| 6 | HD0 | I/O | Host data terminal | 90 | IO VSS | -- | Ground terminal for Input /Output |
| 7 | IO VDD | -- | Power suplly for Input /Output | 91~94 | VD20~ VD23 | O | Video data terminal (B4~7) |
| 8,9 | HD1,2 | I/O | Host data terminal | 95 | VSYNC | I/O | Vertical comparator / Composite comparator output |
| 10 | CKT VSS | -- | Connected to GND | 96 | HSYNC | I/O | Horizontally synchronizing signal |
| 11~15 | HD3~HD7 | I/O | Host data terminal | 97 | VOE | I | Video output enable signal |
| 16 | IO VSS | -- | Ground terminal for Input /Output | 98 | VCO VDD | -- | Power suplly of VCO |
| 17 | TEST | I | Test terminal | 99 | VCLK | I/O | Video clock terminal |
| 18 | XTL VSS | -- | Oscillator grand terminal | 100 | VCO VSS | -- | Ground of VCO |
| 19 | XTLIN | I | Oscillator input terminal | 101 | RESET | I | Reset signal input |
| 20 | XTLOUT | O | Oscillator output terminal | 102 | IO VSS | -- | Ground terminal for input/output |
| 21 | XTL VDD | -- | Power suplly for Oscillator | 103 | C2PO | I | Data error flag input |
| 22 | CKT VDD | -- | Power suplly | 104 | CDLRCK | I | L / R word clock input |
| 23~28 | MD0~ MD5 | I/O | DRAM data / ROM data terminal | 105 | CDDATA | I | Bit serial data input |
| 29 | IO VDD | -- | Power suplly for Input /Output | 106 | CDBCK | I | Bit clock output |
| 30,31 | MD6,7 | I/O | DRAM data / ROM data terminal | 107 | DALRCK | O | L / R clock output |
| 32,33 | MCE0,1 | O | Chip enable output for ROM bank | 108 | DADATA | O | Bit serial PCM audio signal output |
| 34~37 | MD8~ MD11 | I/O | DRAM data / ROM data terminal | 109 | DABCK | O | Bit clock output |
| 38 | IO VSS | -- | Ground terminal for Input /Output | 110 | IO VDD | -- | Power suplly for input/output |
| 39~42 | MD12~ MD15 | I/O | DRAM data / ROM address terminal | 111 | XCK | I | Bit clock input terminal from outside |
| 43 | 5V VDD | -- | Power suplly (+5V) | 112 | CKT VDD | -- | Power suplly |
| 44 | LCAS | O | DRAM LCAS/ROM address terminal | 113 | PIO12 | O | Interact 2 signal output |
| 45 | LCASIN | I | DRAM LCAS input | 114 | PIO11 | O | Non connection |
| 46 | CKT VSS | -- | GND | 115 | PIO10 | I | Host enable signal input |
| 47 | MWE | O | DRAM write enable signal output | 116 | PIO9 | I | Boot rom enable signal input |
| 48 | UCAS | O | DRAM UCAS/ROM address terminal | 117 | PIO8 | O | Non conection |
| 49 | IO VDD | -- | Power suplly for input/output | 118 | PIO7 | O | DAC emphasis signal output |
| 50 | UCAS IN | | DRAM UCAS input terminal | 119 | PIO6 | I | CD-DA emphasis signal input |
| 51,52 | RAS0,1 | O | DRAM RAS0,1 terminal | 120 | PIO5 | O | Non connection |
| 53~57 | MA9~ MA5 | O | DRAM data / ROM address terminal | 121 | PIO4 | O | FMV detect signal output |
| 58 | IO VSS | -- | Ground terminal for Input /Output | 122 | PIO3 | O | CD-DA Video CD select signal output Low : Video CD |
| 59~63 | MA4~ MA0 | O | DRAM data / ROM address terminal | 123 | 5V VDD | -- | Power suplly (+5V) |
| 64 | PIO0 | O | ROM address extention terminal | 124 | PIO2 | O | Non conection |
| 65 | IO VDD | -- | Power suplly for Input /Output | 125 | IO VSS | -- | Ground for input/output |
| 66~72 | VD0~ VD6 | O | Video data terminal (R0~6/CrCb0~6/YCrCb0~6) | 126 | PIO1 | O | Non connection |
| 73 | IO VSS | -- | Ground terminal for Input /Output | 127 | HA0 | I | Host address input |
| 74~76 | VD7~VD9 | O | Video data terminal (R7/CrCb7/YCrCb7)(G0,1/Y0,1) | 128 | HA1 | I | Host address input |
| 77 | CKT VDD | -- | Power suplly | | | | |

## ■ MN171601(IC111) : Host Micon

### 1. Terminal Layout

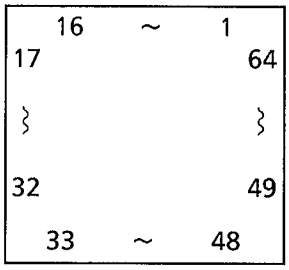



### 2. Terminal description

| Pin No. | Symbol | I/O | Description | Pin No. | Symbol | I/O | Description |
|---|---|---|---|---|---|---|---|
| 1 | 480 RST | O | Reset signal output | 41~48 | SD1~SD8 | I/O | SRAM data input/output terminal |
| 2 | MREQ | I | Input the transfer request data signal | 49 | SR/W | O | Read / Write signal input/output |
| 3 | ACT INT | I | Interact 2 signal input | 50 | PAL60 | O | |
| 4 | G DET | I | | 51 | RESET | I | Reset signal input |
| 5 | GND | -- | GND | 52 | X1 | -- | Non connection |
| 6 | DTACK | | | 53 | X2 | -- | Non connection |
| 7 | GND | -- | GND | 54 | VSS | -- | Ground terminal |
| 8 | GND | -- | GND | 55 | OSC2 | -- | Non connection |
| 9 | DIR | | | 56 | OSC1 | I | Clock input terminal |
| 10 | N/PAL | I | NTSC/PAL control signal output | 57 | VDD | -- | Power suplly |
| 11 | RGB | O | RGB control signal output | 58 | HREQ | O | Communication signal output |
| 12 | W/R | O | Read / Write signal input/output | 59 | SRCLK | | |
| 13~15 | HA0~HA2 | O | Address signall output for MPEG LSI | 60 | M2HDT | O | Serial data output |
| 16 | DS | O | Data strobe signal output | 61 | H2MDT | I | Serial data input |
| 17~24 | HD0~HD7 | O | Data terminal for MPEG LSI | 62 | HRDY | | Communication signal output |
| 25~39 | SA0~SA14 | O | SRAM address signal output | 63 | VCD/G | O | Video switch switching signal output |
| 40 | SCS | O | SRAM | 64 | PALCDG | O | PAL CDG control signal output |

## ■ BU1417K (IC104) : Digital RGB-TV Encoder

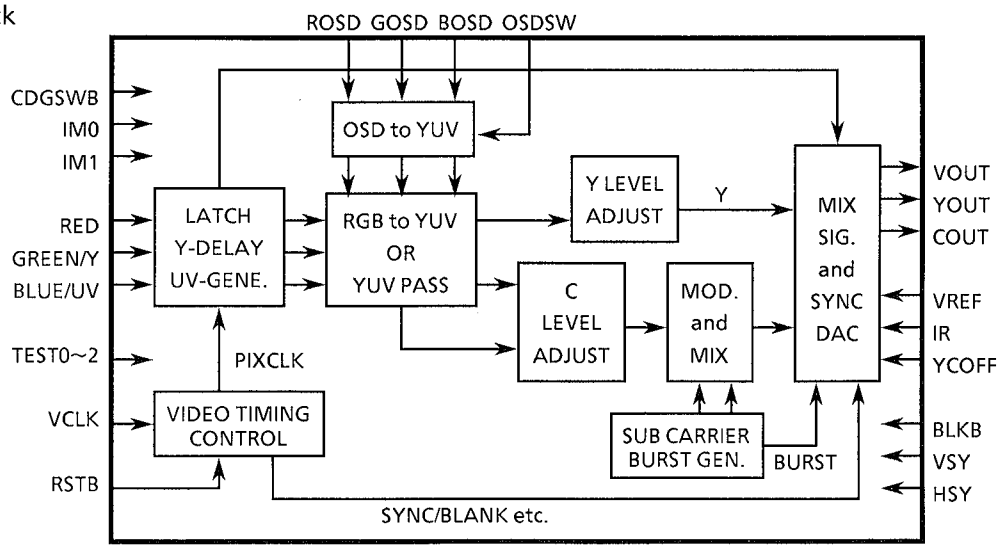
### 1. Terminal Layout




### 2. Pin function

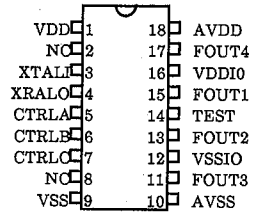
| Pin No. | Symble | I/O | Function |
|---|---|---|---|
| 1 | BOSD | I | OSD Blue data input |
| 2~8 | GD0~GD6 | I | Green/Y data bit0~bit6 input |
| 9 | GND | -- | GND |
| 10 | GD7 | I | Green / Y data bit7 input (MSB) |
| 11~14 | BD0~BD3 | I | Blue / UV data bit0~bit3 input |
| 15 | OSDSW | I | OSD input enable (Input data H : ROSD, GOSD,BOSD color output) |
| 16 | CDGSWB | I | Select Videi-CD / CD-G Video-CD(H) ,CD-G(L) |
| 17~20 | BD4~BD7 | I | Blue / UV data bit4~bit7 input. |
| 21 | GND | -- | GND |
| 22 | NC | I | Select NTSC/PAL L : NTSC, H : PAL |
| 23,24 | IM0,IM1 | I | Not use |
| 25,26 | TEST1,2 | I | Connected to GND |
| 27 | CVSY | I | C - sync input |
| 28 | HSY | I | H -Sync input |
| 29 | PIXCLK | O | 1/2 Frequency of internal clock |
| 30 | BLKB | I | Data blanking enable L : output OK |
| 31 | VDD | -- | Power suplly |
| 32 | INT | I | Select Interlace(H) / Non - interlace(L) |
| 33 | SLABEB | I | Set mode Master(H) / Slabe(L) |
| 34 | ADDH | I | ADD one _line at non - inter. |
| 35 | VREF | I | Reference Voltage (1.29V) |
| 36 | CGND | -- | Chroma output GND |
| 37 | COUT | O | Chroma output for 'S ' terminal |
| 38 | VGND | -- | Composite output GND |
| 39 | VOUT | O | Composite output |
| 40 | AVSS | -- | GND |
| 41 | NC | -- | Non connection |
| 42 | IR | I | Reference resister (Set the output vertical for DAC) |
| 43 | AVDD | -- | Power suplly |
| 44 | YGND | -- | Luminance output GND |
| 45 | YOUT | O | Luminance output for 'S' terminal |
| 46 | G4FSC | -- | Non connection |
| 47 | GCLK | -- | Video clock input for VCD |
| 48 | YCOFF | -- | onnected to GND |
| 49 | DVSS | -- | GND |
| 50 | DVDD | -- | Pal 60 on at NTB = high |
| 51 | VCLK | I | Video clock input for VCD |
| 52 | RSTB | I | Logic part initial reset |
| 53 | TEST0 | -- | Divide input CLK enable |
| 54~56 | RD0~RD2 | I | Red data bit0~bit2 |
| 57 | ROSD | I | OSD Red data input |
| 58~60 | RD3~RD5 | I | Red data bit3~bit5 |
| 61 | VDD | -- | Digital VDD |
| 62,63 | RD6,RD7 | I | Red data bit6~bit7 |
| 64 | GOSD | I | OSD Green data input |

### 3. Block



## ■ BU2173F(IC105): VCO

1.Pin layout

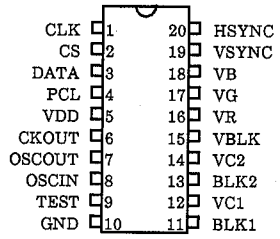



2. Description

| Pin No. | symbol | I/O | Description | Pin No. | symbol | I/O | Description |
|---|---|---|---|---|---|---|---|
| 1 | VDD | - | Digital VDD | 10 | AVSS | - | Analog GND |
| 2 | NC | - | Not use | 11 | FOUT3 | - | Not use |
| 3 | XTALI | I | Input of X'tal oscillation circuit | 12 | VSSIO | - | Connected to GND |
| 4 | XTALO | O | Output of X'tal oscillation circuit | 13 | FOUT2 | O | Clock output terminal 2 |
| 5 | CTRLA | I | Select of clock Video-CD / CD-G | 14 | TEST | - | Connected to GND |
| 6 | CTRLB | I | Nomal mode = H | 15 | FOUT1 | O | Clock output terminal 1 |
| 7 | CTRLC | I | Select of clock CD-G PAL / NTSC | 16 | VDDIO | - | Power suplly |
| 8 | NC | - | Connected to GND | 17 | FOUT4 | O | Clock output terminal 4 |
| 9 | VSS | - | Digital GND | 18 | AVDD | - | Analog VDD |

## ■ uPD6461GS-635(IC106): OSD

1.Pin layout




2. Description

| Pin No. | symbol | I/O | Description | Pin No. | symbol | I/O | Description |
|---|---|---|---|---|---|---|---|
| 1 | CLK | I | Clock signal input | 11 | BLK1 | O | Not used |
| 2 | CS | I | Able to transmit serial in L | 12 | VC1 | O | Not used |
| 3 | DATA | I | Control data input | 13 | BLK2 | O | Not used |
| 4 | PCL | I | Clear pin in power on | 14 | VC2 | O | Not used |
| 5 | VDD | -- | +5V | 15 | VBLK | O | Blanking signal output |
| 6 | CKOUT | O | Not used | 16 | VR | O | Character signal output |
| 7 | OSCOUT | O | Not used | 17 | VG | O | Character signal output |
| 8 | OSCIN | I | Dot Clock signal input | 18 | VB | O | Character signal output |
| 9 | TEST | -- | GND | 19 | VSYNC | I | Vertical syncro signal input |
| 10 | GND | -- | GND | 20 | HSYNC | I | Horizontal syncro signal input |

# Disassembly Procedures

(1) Top cover removal
1. Remove 2 screws Ⓐon the rear side and 4 screws Ⓑ on both sides of the cover.
2. Remove the cover.

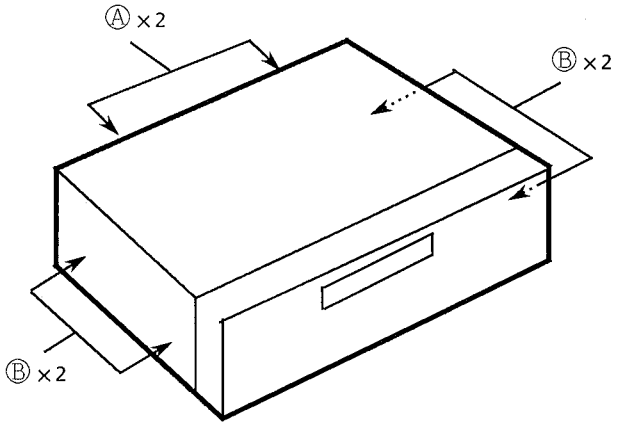



Fig1

(2) Rear panel removal
1. Remove the top cover.
2. Remove the 10screws Ⓒ and 2 screws Ⓓ .
3. Remove the rear panel.

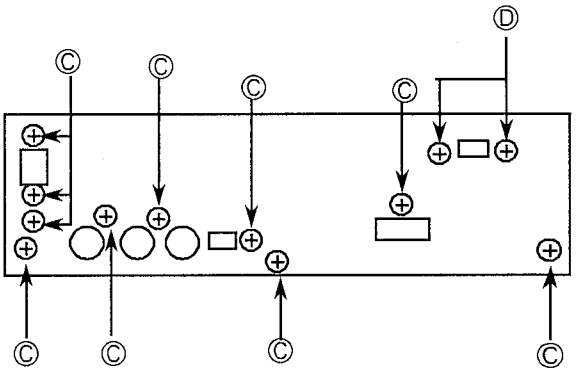



Fig2 Rear view

(3) Front panel assembly removal
1. Remove the top cover.
2. Disconnect the CN201 and CN202. Remove the screw fixing the wire on the CD changer mecha ass'y.
3. Remove the 3screws Ⓔ on the bottom of the front panel.
4. Release the hooks Ⓧ holding the front panel , and remove the front panel assembly.

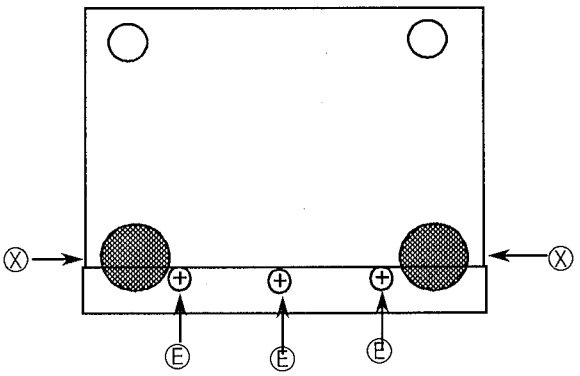



Fig3

(4) CD changer mecha ass'y removal
1. Remove the top cover.
2. Remove the front panel ass'y.
3. Disconnect the CN211,CN212,CN214 and J213.
4. Remove the 4screws Ⓨ.
5. Remove it.

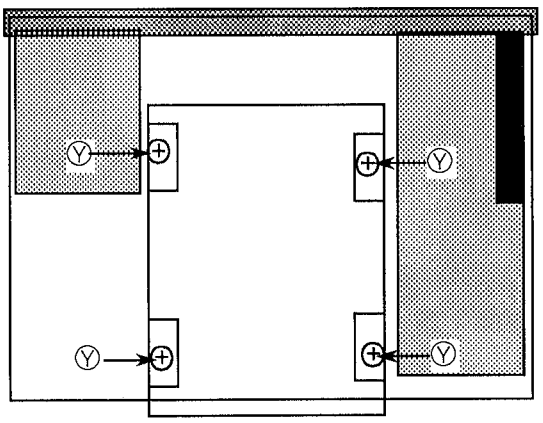



Fig4

Ⓐ .. SBSG3008N Ⓑ ... E406308-002 Ⓒ ... E73273-003 Ⓓ ... SBSF2608M
Ⓔ .. SBSG3008M Ⓨ ... SBSG3008Z

(5) CD Main PCB(ENN-469-1) with same PCB removal

1. Remove the top cover and rear panel.
2. Disconnect the connector CN201,CN202,CN211,CN212,CN214,CN101 and CN213.
3. Remove the 3screws Ⓙ.
4. Remove the CD Main PCB(ENN-469-1).

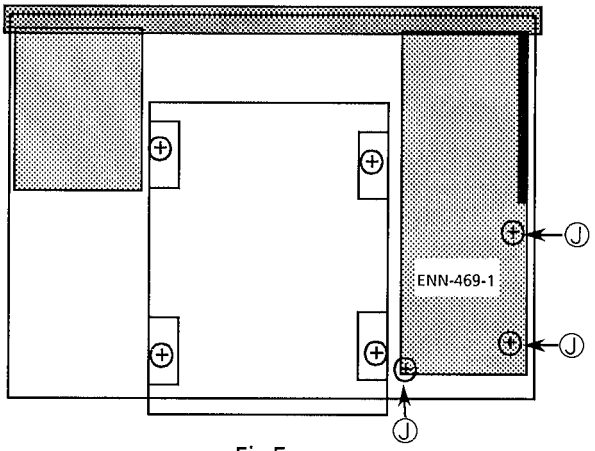
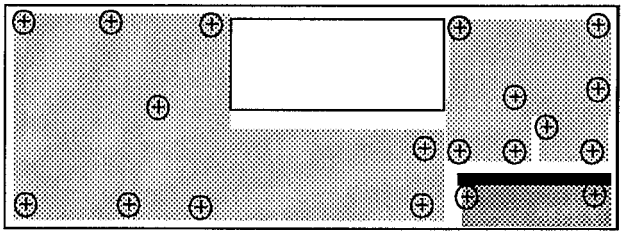



Fig5

(6) Front PCB(ENN-469-2~4,ENN-473-5) removal

1. Remove the top cover.
2. Remove the Front panel ass'y.
3. Remove the 3 MIC knobs and a ECHO knob.
4. Remove the 19 screws Ⓛ.
5. Remove the Front PCB.



⊕(Ⓛ×19)

Fig6

(7) VIDEO CD PCB(ENV-004) removal

1. Remove the top cover.
2. Remove the 4 fastener fixing the video CD PCB.
3. Remove it.

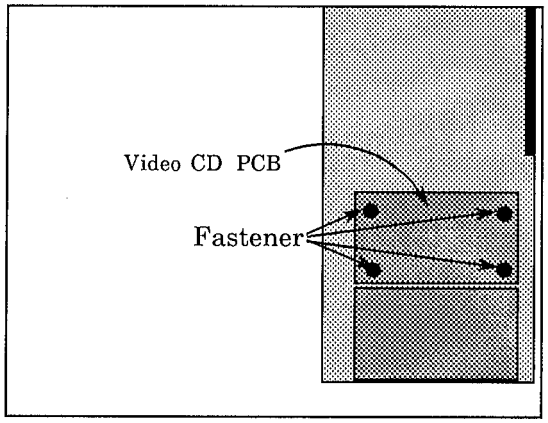



Fig7

(8) System control PCB(ENN-469-5) removal

1. Remove the top cover.
2. Remove the 3 fastener fixing the system control PCB.
3. Remove it.

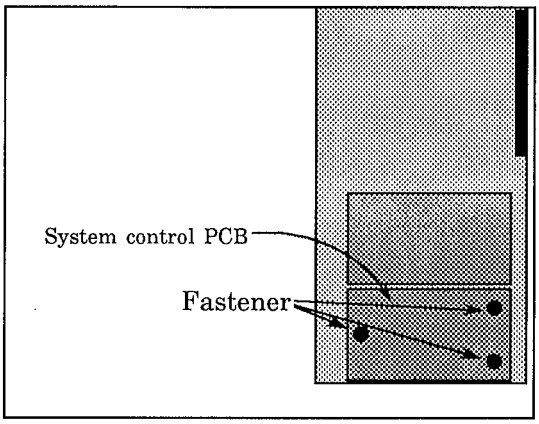



Fig8

Ⓙ .. GBSB3008CC Ⓛ ... SDSF2608Z

# CD Changer mech. Ass'y removal

## (9) CD Tray assembly removal

1. Disassemble the changer mech..
2. Remove the rod from both ends' hooks which are secured on T.Bracket ⓐ and clamper baseⓑ. [See Fig. 12)
3. Remove 3 screwsⓁ securing T.Bracket.(See Fig. 14)
4. Remove a screw Ⓝsecuring center of the clamper ass'y. (See Fig. 13)
5. Remove the clamper ass'y from ★ screw fixing side.
6. Remove a screw Ⓛwhich secures the return spring and lock levers from the chassis ass'y.(See Fig. 15.)
7. Remove 2 pallsⓓ which slightly secure the return spring to remove it.
8. Remove 3 lock levers.
9. Check that the lifter unit stopper is inserted into hole ⓔ located on CD tray ass'y. (See Fig. 16.)
10. Check that the driver unit elevator is seen from a hole (marked ⑤) on left side of the CD changer mech..(See Fig. 17 and 18.)
    [NOTE] Set the elevator in correct position (Fig. 18) by rotating the pulley gear with finger if it is not positioned correctly (Fig. 19.).
11. Rotate the motor pulley clockwise with finger until the lifter unit's stopper is lowered from ⓔhole located on the CD tray ass'y. (See Fig. 19.)
12. And, pull all 3 CD tray assemblies forward until they stop. (See Fig. 17.)
13. Press 2 pawls (f, f') located rear side of the CD tray ass'y according to an arrowⓗ to remove the CD tray ass'y. (See Fig. 20.)
    At first, removing the lowest tray is easier.

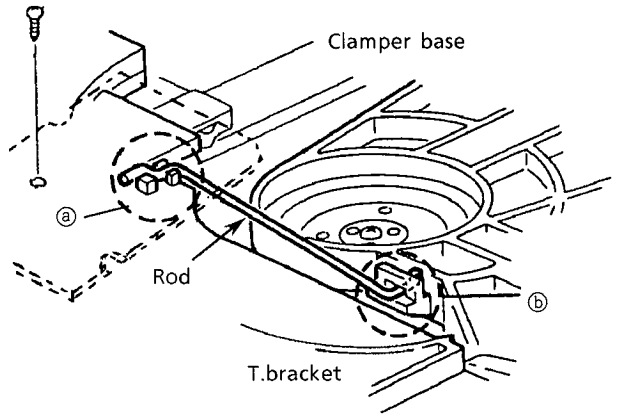



Fig. 12

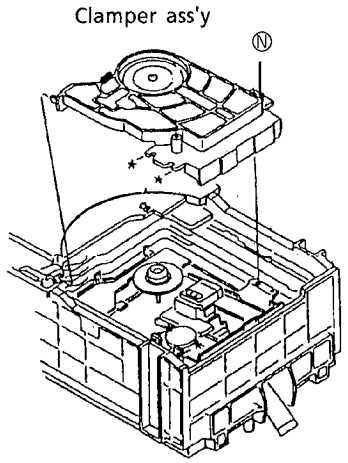



Fig.13

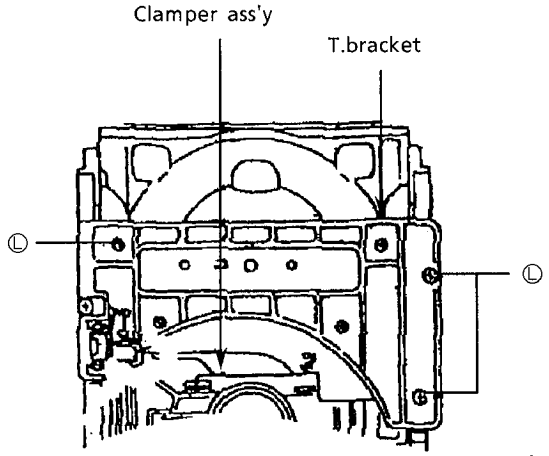



Fig.14

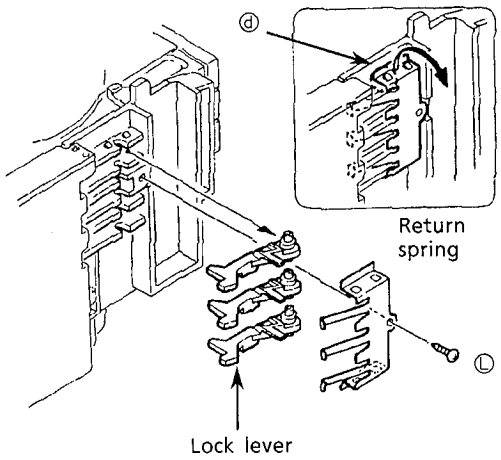



Fig.15

Ⓛ .. SBSF2608Z Ⓝ ... SPST2606Z

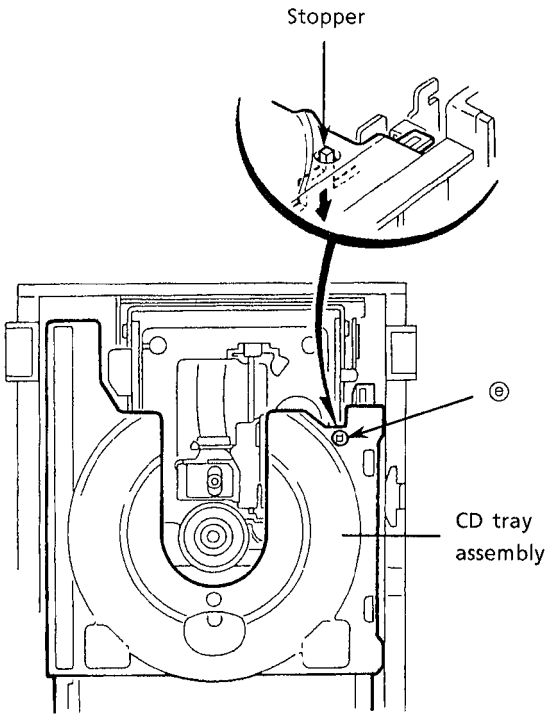



Fig. 16

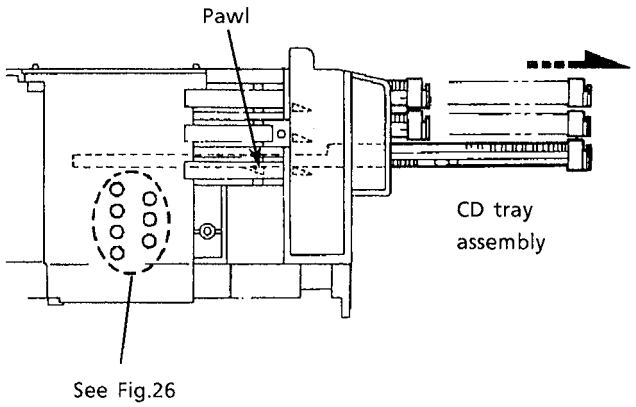



Fig. 17

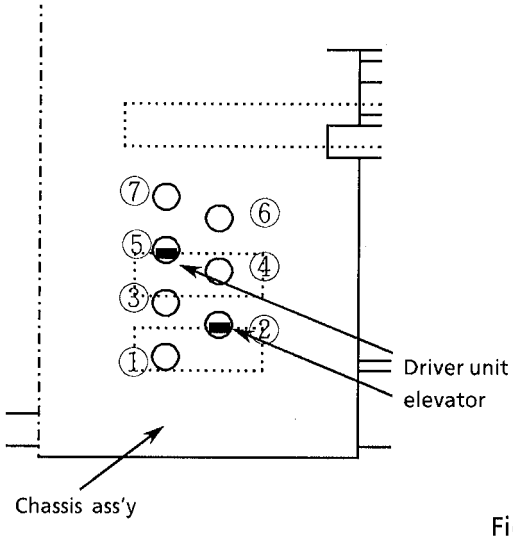



Fig. 18

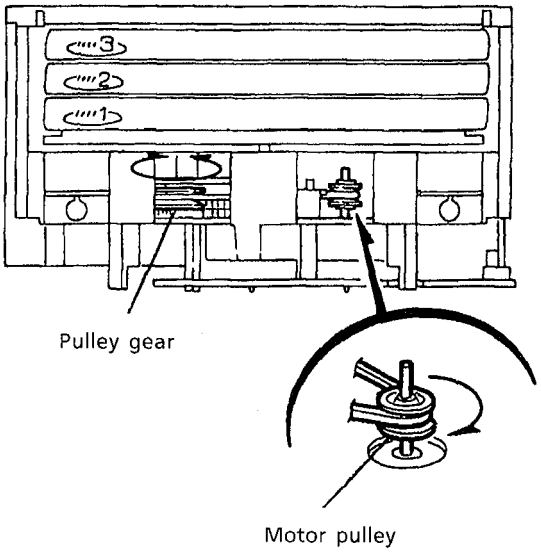



Fig. 19

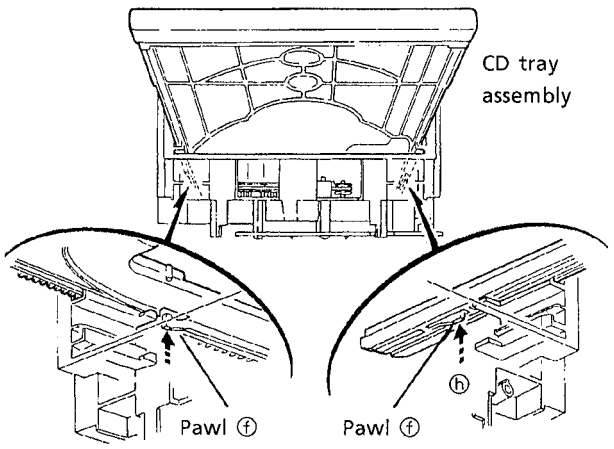



Fig. 20

Ⓛ .. SBSF2608Z

(10) CD mechanism removal

1. Remove the CD tray ass,y .
2. Rotate the Cam R1, R2 ass'y counterclockwise so that CD mech. ass'y's shaft ⓗ is positioned as shown in Fig. 21.
3. Remove 4 screws Ⓛ securing CD mech. ass'y. (See Fig. 21.)

*How to replace pick-up unit

1. If CD mech. is removed without disassembling CD mech. ass'y, rotate the Cam R1, R2 ass'y clockwise to set the CD mech. ass'y's shaft(L) as shown in Fig. 22.
2. Lift the CD mech. ass'y toward the direction ⓘ to remove it from the lifter unit. (See Fig. 23.)

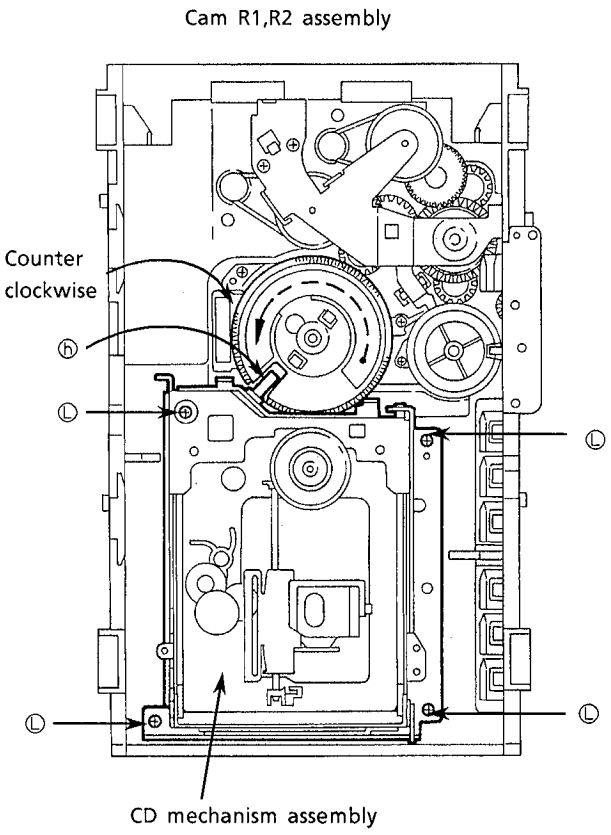



Fig. 21

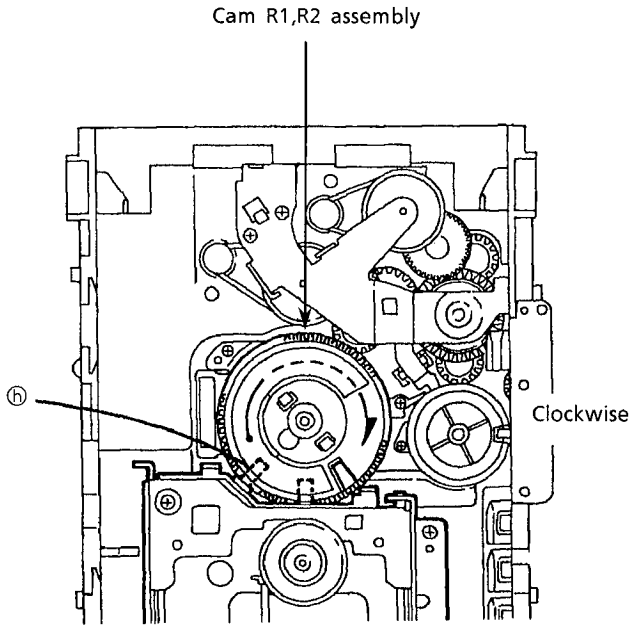



Fig. 22

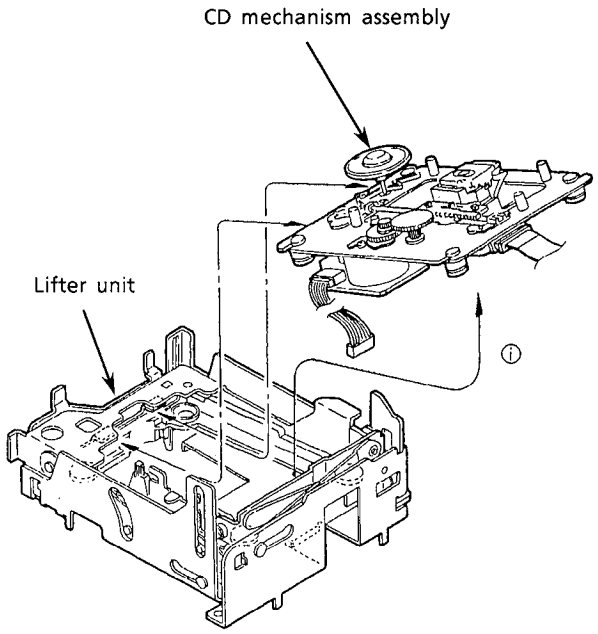



Fig. 23

Ⓛ .. SBSF2608Z

(11) Actuator motor board removal

1. Unsolder 4 soldered point ⓙ for both motors. (See Fig. 24.)
2. Remove a screw Ⓗ securing the CD servo board. (See Fig. 24.)
3. Press the hook and release it to remove the CD servo board.
4. Remove 2 screws Ⓕ securing the actuator motor board. (See Fig. 24.)
5. Remove 2 screws Ⓛ securing the tray select switch board. (See Fig. 25.)

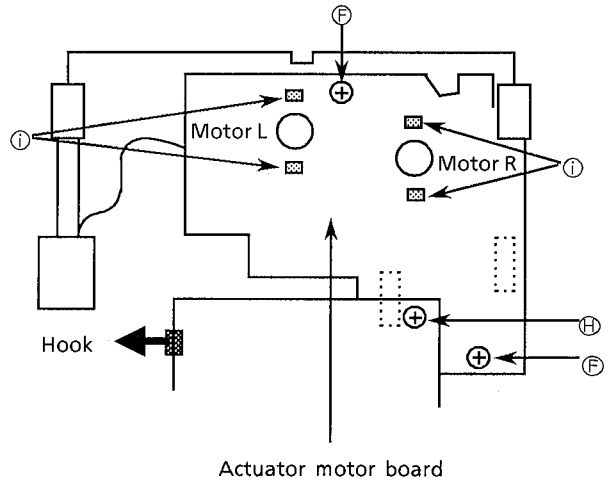



Fig. 24

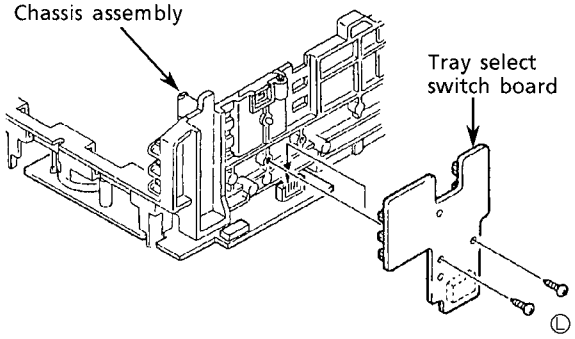



Fig. 25

(12) Cam unit removal

1. Disassemble CD mech. ass'y.
2. Rotate the Cam gear L so that the drive unit's pole ⓚ is positioned as shown in Fig. 26.
3. Remove the drive unit and cylinder gear. (See Fig.27.)
4. Rotate the Cam gear L so that the select gear's ⓘ is positioned as shown in Fig.28.
5. Remove 4 screws Ⓕ securing the cam unit which includes the cam gear L and Cam R1, R2 ass'y. (See Fig 28.)

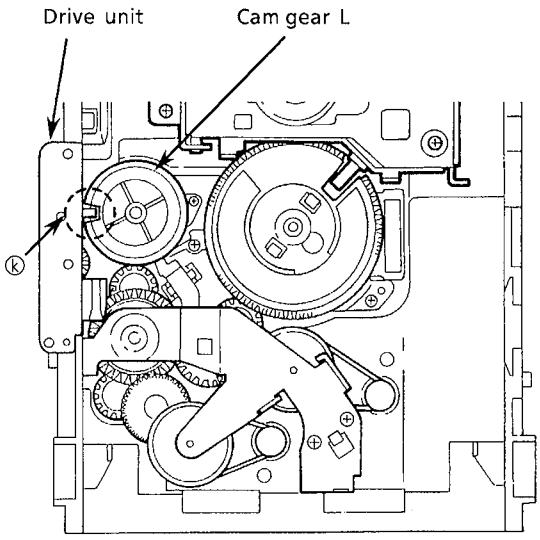



Fig. 26

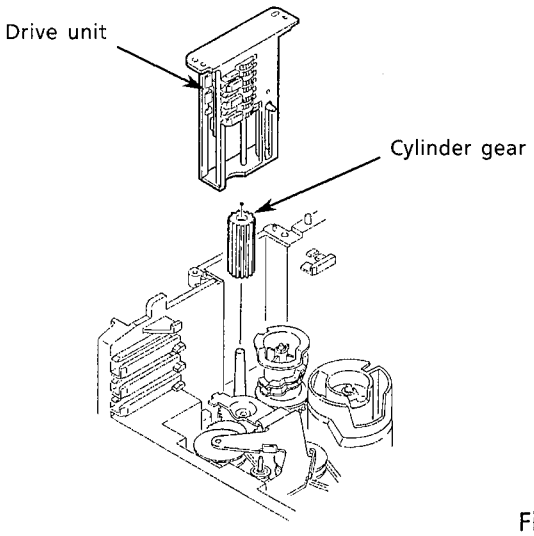



Fig. 27

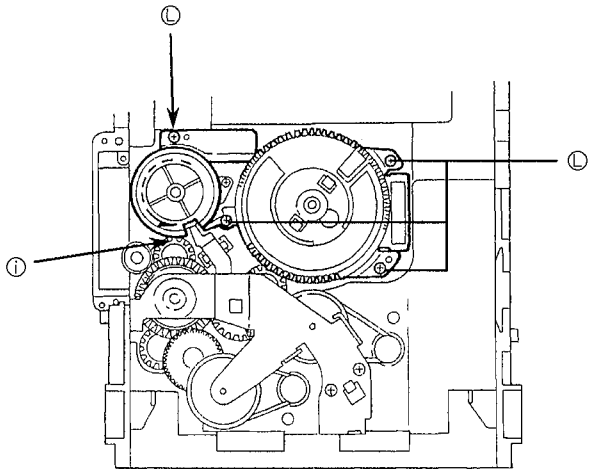



Fig. 28

Ⓕ .. SBSF2608Z Ⓗ ... SBSF3008Z

(13) Removal for actuator motor and belt

1. Remove 2 screws ⓟ securing the gear bracket. (See Fig. 29.)
2. Press the pawl Ⓜ securing the gear bracket to the arrow in the figure to remove the gear bracket. (See Fig. 29.)
3. Remove the gear bracket from the chassis ass'y's ⓝ securing top of the gear bracket. (See Fig. 30.)
4. Remove each belts from the both actuator motor pulleys and the pulley gears. (See Fig.29.)
5. Reverse the chassis ass'y and widen 4 poles ⓞ which secure both actuator motors to its arrows to remove the actuator motors. (See Fig.31 .)

[NOTE] The pulley gears and other gears which consist the gear unit may drop separately if the chassis ass'y is reversed without gear bracket and belt. See Fig. 32 to assemble them again.

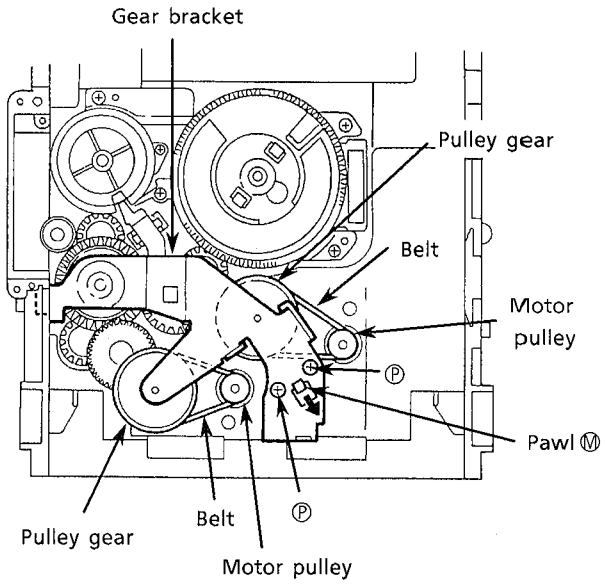



Fig. 29

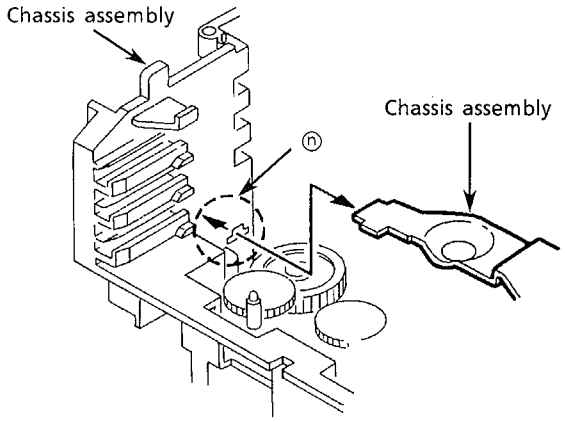



Fig. 30

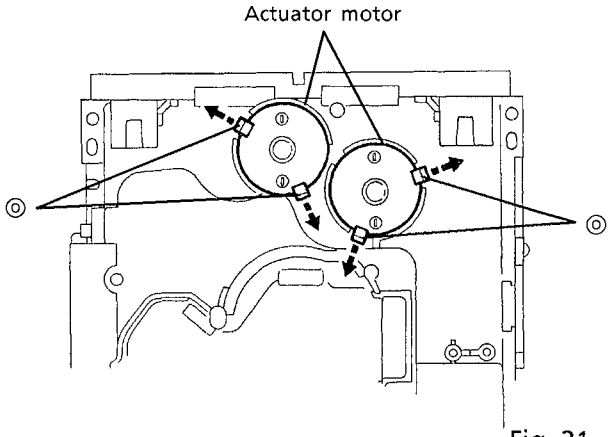



Fig. 31

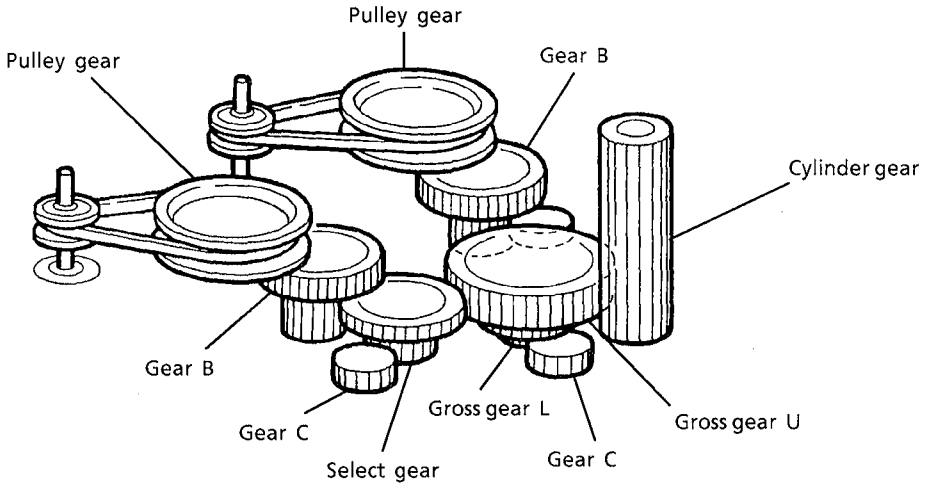



Fig. 32

① .. DPSP2616Z

(14) Removal of cam R1, R2 ass'y and cam gear L

1. Remove the slit washer securing Cam R1, R2 ass'y. (See Fig. 33.)
2. Remove 2 poles Ⓟ securing Cam R1 to remove Cam R2 from Cam R1.
3. Remove the slit washer securing Cam gear L.
4. Remove Cam gear L from the C.G. base ass'y.

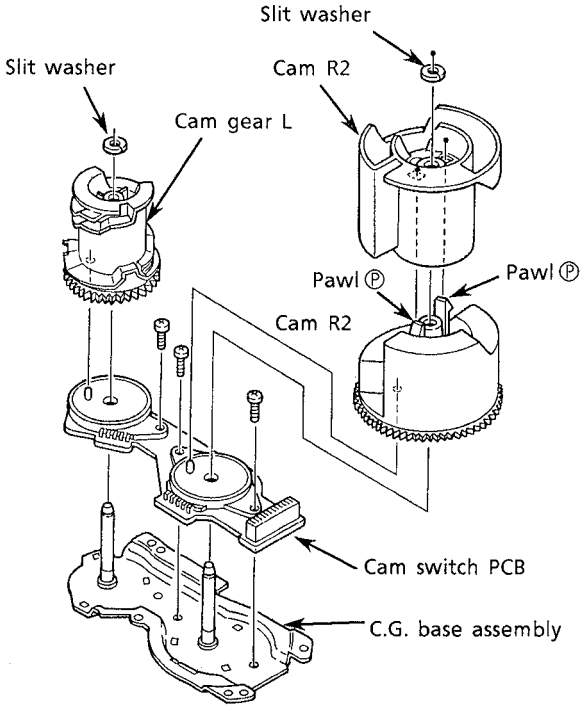



Fig. 33

(15) Removal of C.G. base ass'y

Remove 3 screws Ⓠ securing the C.G. base ass'y. (See Fig. 33 and 34.)

[NOTE] Set the drive unit's pawl Ⓡ so that it is positioned as shown in Fig. 34.
Confirm that the cam gear L engages with the gear unit by rotating the cam gear L.

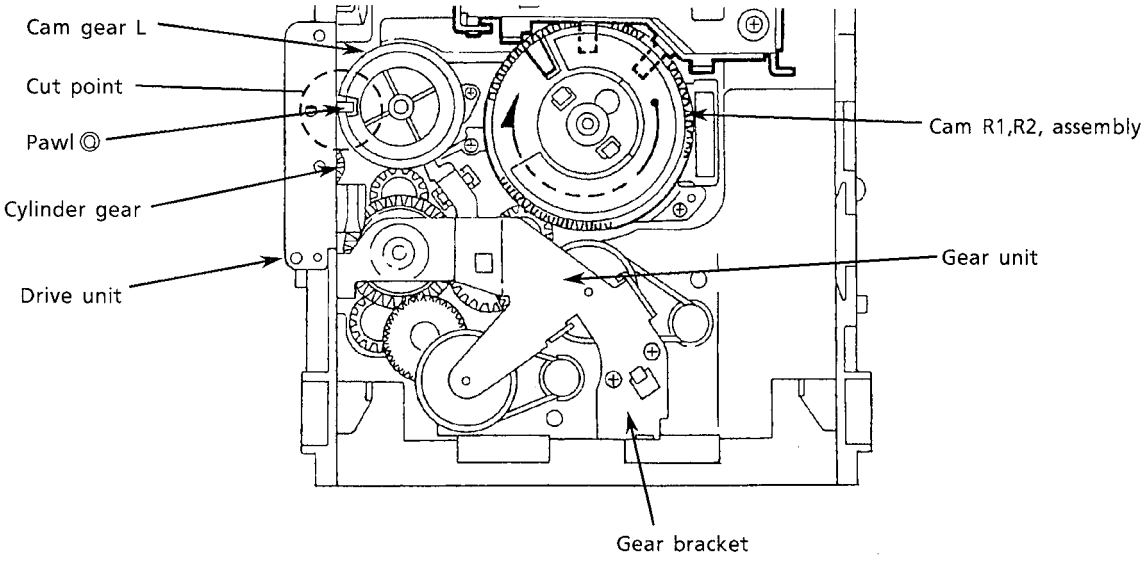



Fig. 34

Ⓠ .. SPST2606Z

(16) Removing the Pickup
1. Remove the CD mech. assembly.
2. Release the shaft to remove the pickup.

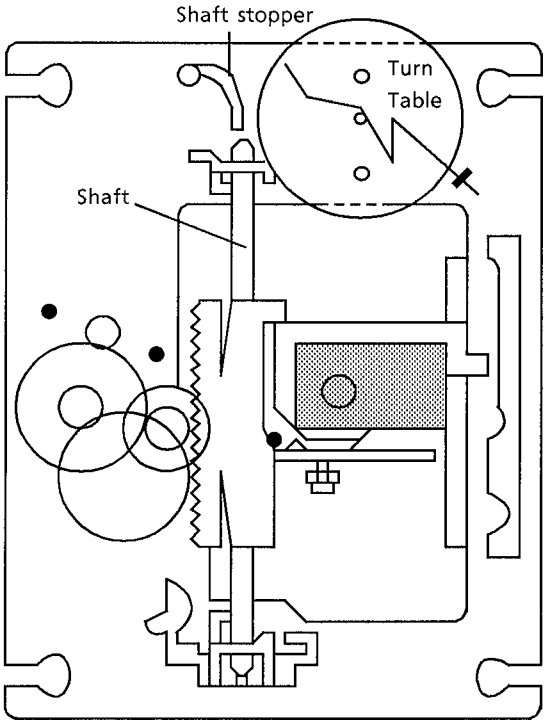



Fig. 35

(17) Spindle motor installation
1. Tighten the 2 screws to the same torque.
2. Fasten the spindle and feed motor P.C. board with the screw and solder.
3. Install the turntable.When installing, press straight down at the center of the turntable until the distance from the surface of the mech. base to the turntable is exactly 19.4±0.1mm.

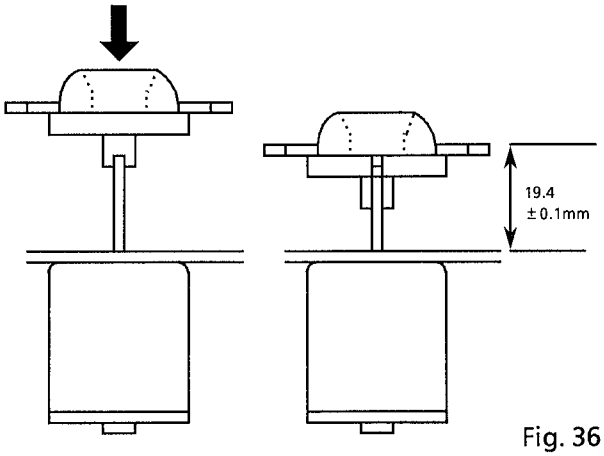



Fig. 36

(18) Removing the Spindle motor
1. Remove the CD mech. assembly.
2. Remove the turntable, and remove the 2 screws Ⓧ retaining the spindle motor.
3. Remove the screw retaining the spindle and feed motor circuit board and unsolder it.

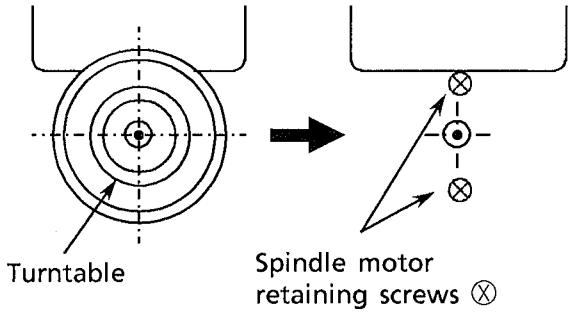



Fig. 37

(19) After inserting the turntable, bond the motor shaft and turntable together (at the section marked by an arrow in fig 46 on the left below).

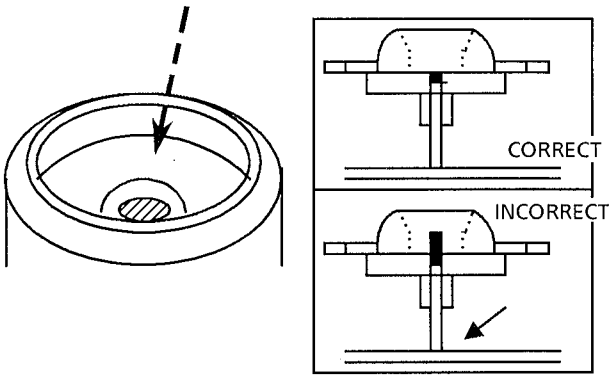



Fig. 38

(20) Use "LOCKTITE" #460 bonding agent, and apply as little as possible.

Take care not to allow any excess bonding agent to get onto the turntable.

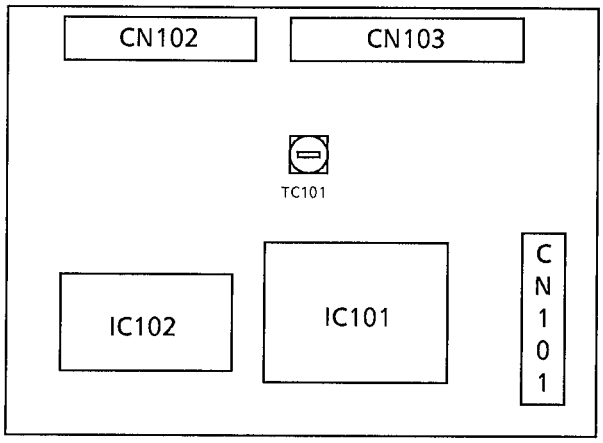
Be extremely careful not to allow bonding agent to adhere to the motor bearing (the section marked by an allow in fig. 38 on the right).

Ⓧ .. SDSP2003N

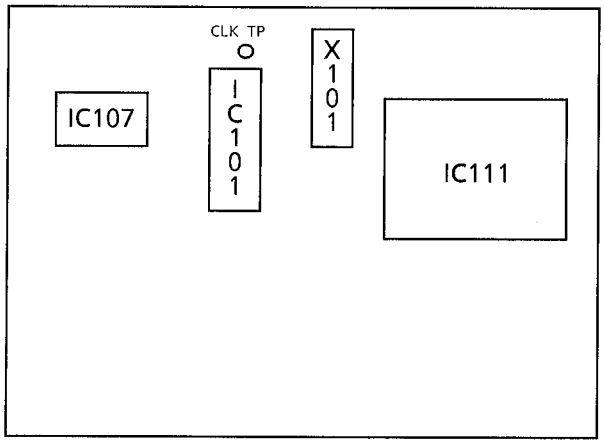
# Adjustment procedures

■ Video CD section

Top view




Bottom view



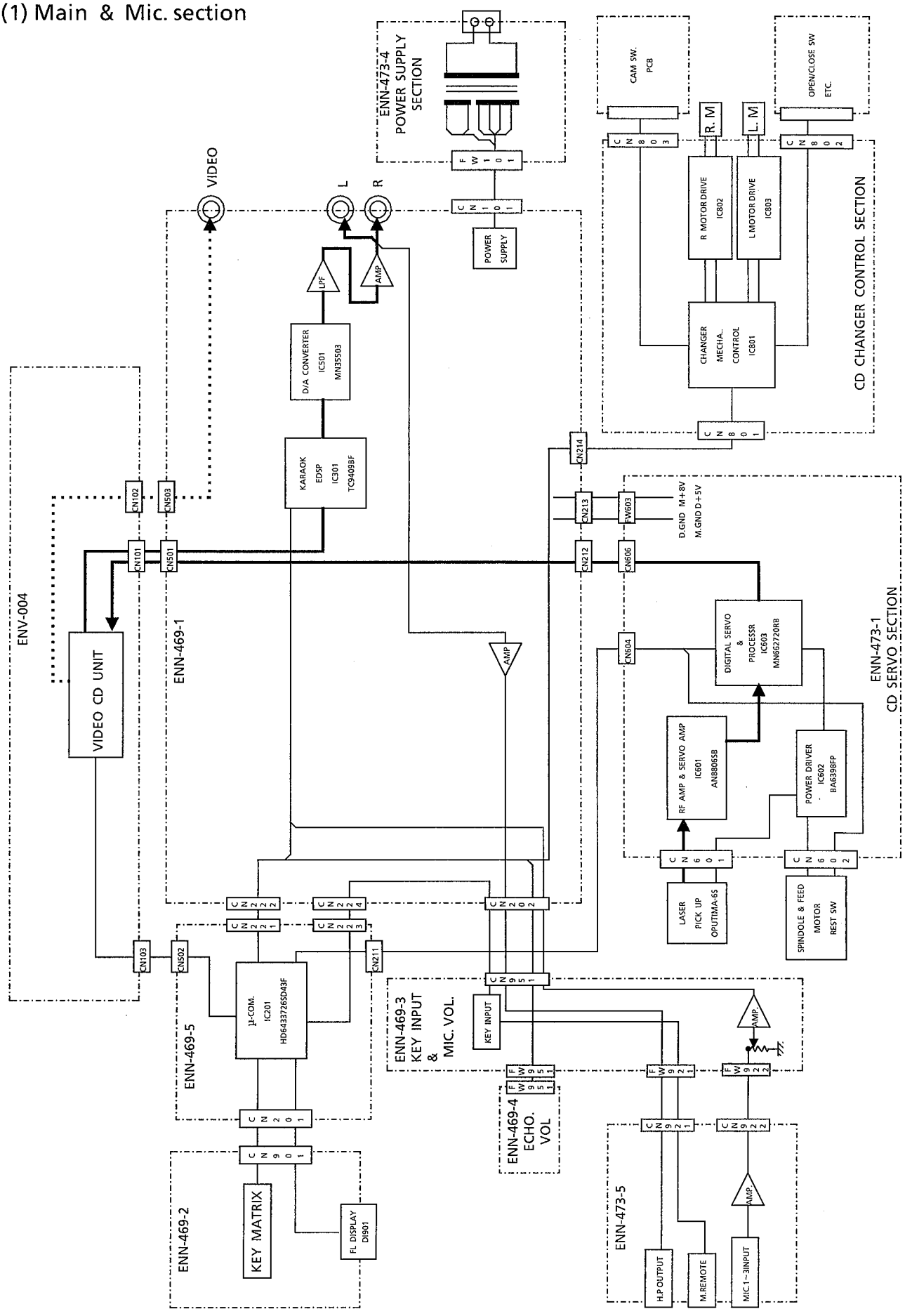

■ Frequency for coror adiustment

1. Measuring instruments
   1) Frequency counter
   2) Driver for adjustment

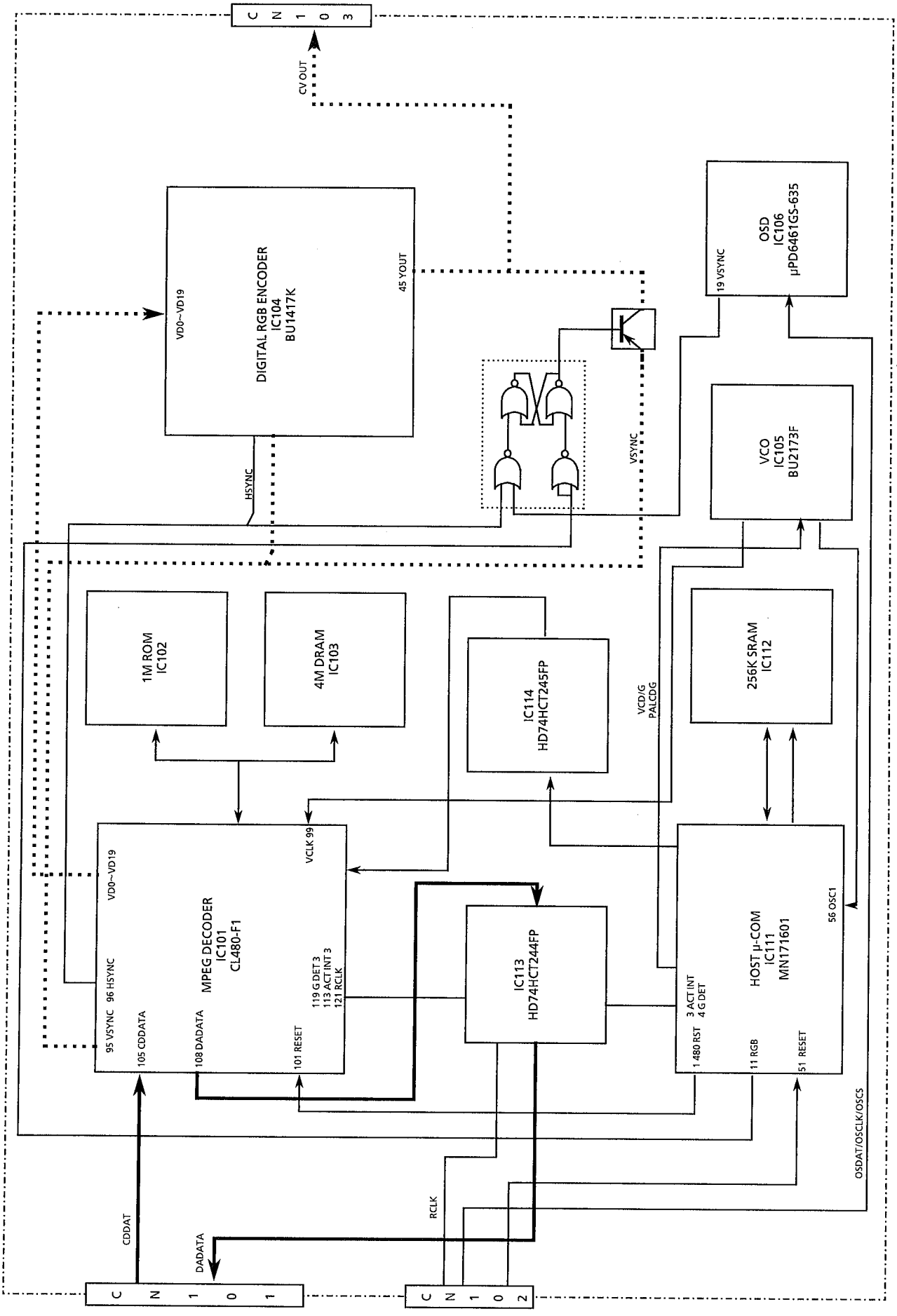
2. Adiustment procedure
   1) Connect a Frequency counter to the CLK TP and GND.
   2) Adjust TC101 so that the frequency becomes 3375000±10HZ.

# Block Diagrams

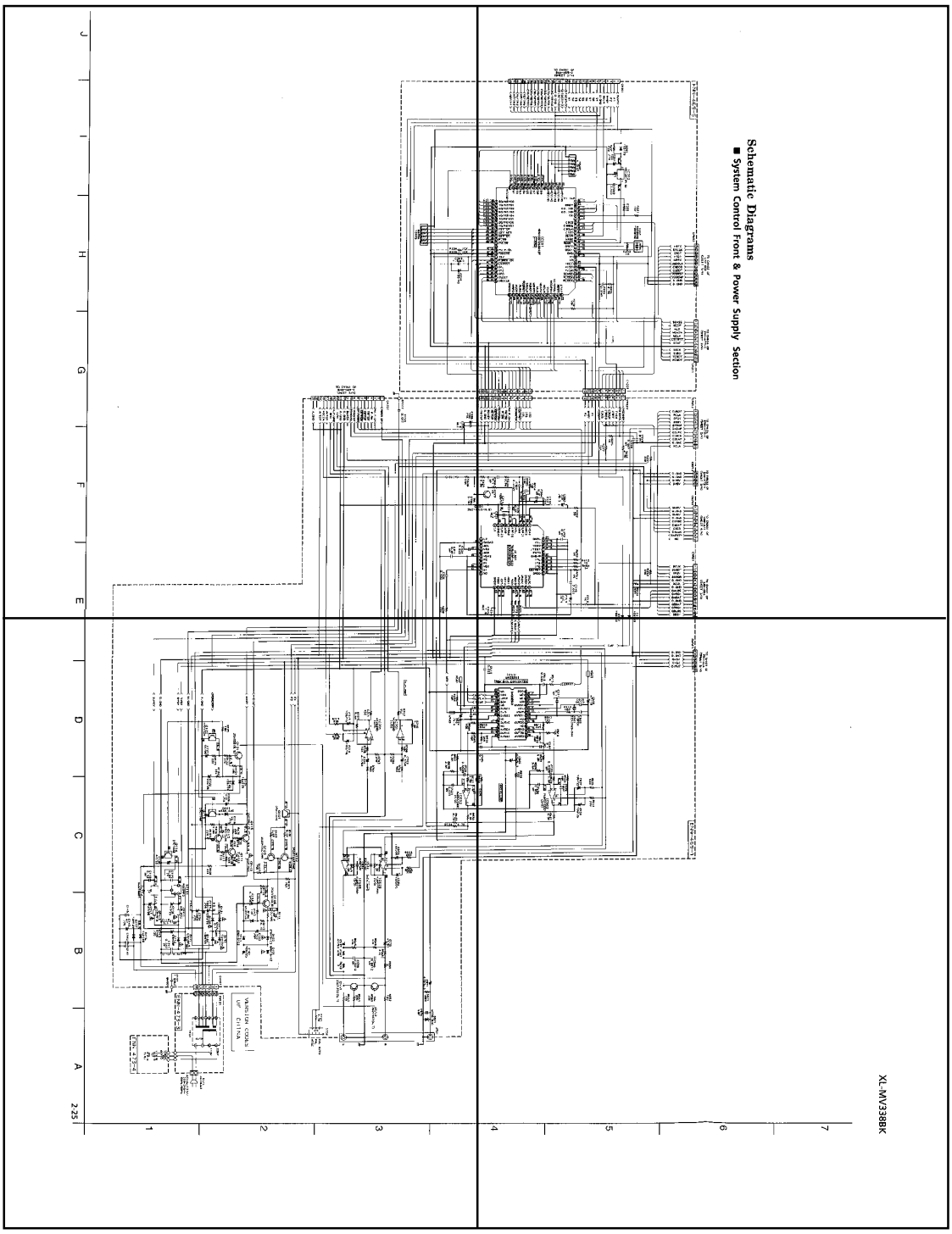
## (1) Main & Mic. section



## (2) Video CD Section



P2-25-a P2-25-b

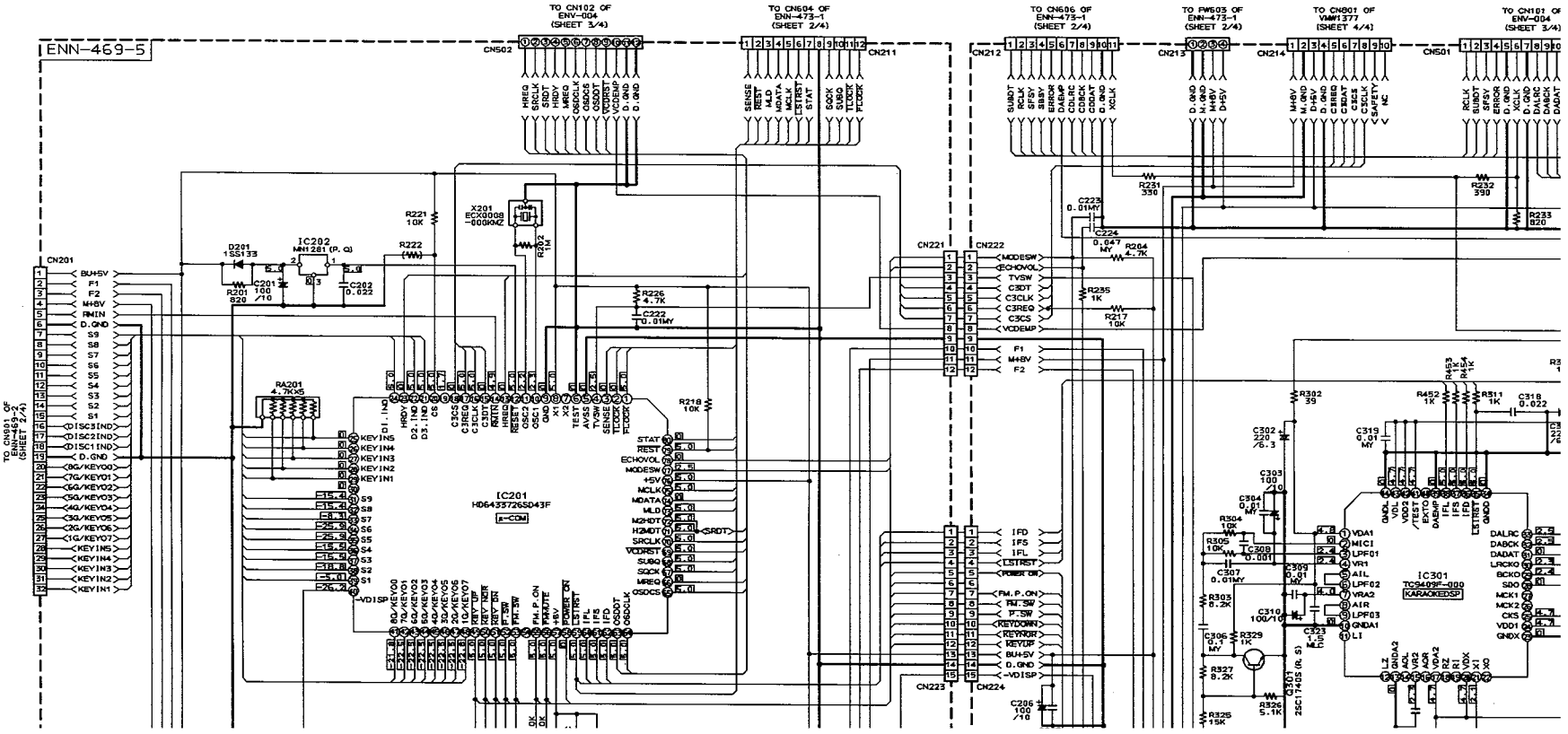


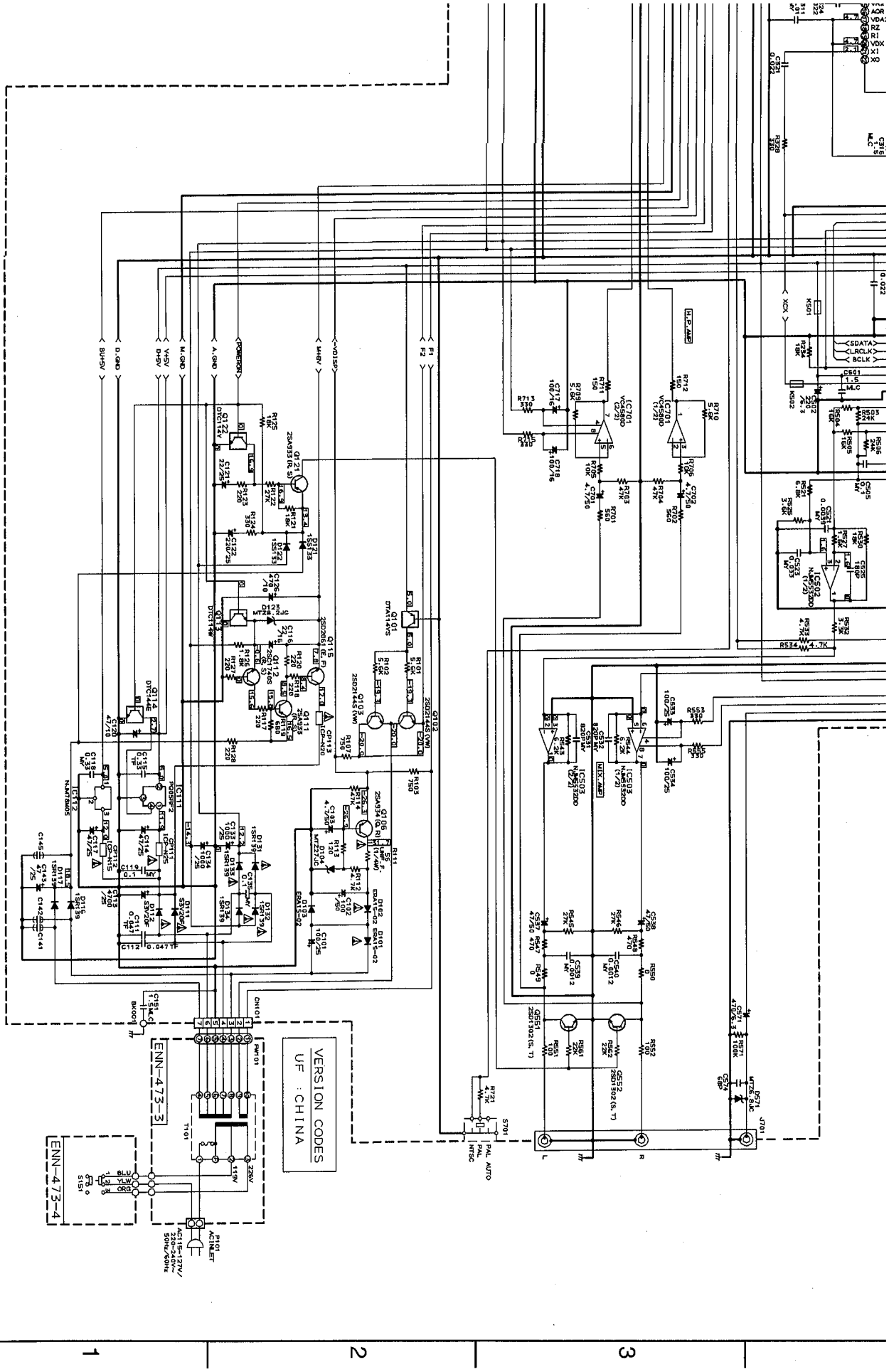

P2-25-c P2-25-d

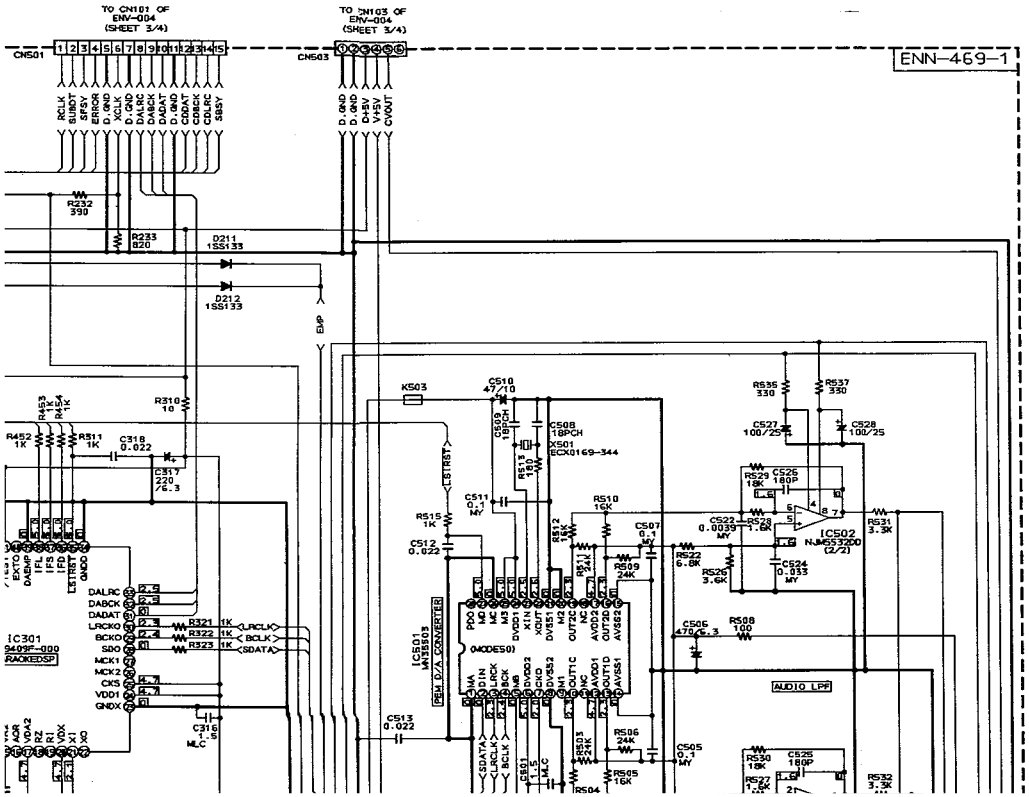
J
I
H
G
F
TO CN951 OF
ENN-469-3
(SHEET 2/4)
CN202
CN223
CN224
R224
R225
10K
10K
C203
1.5
NLC
C204
100/10
C206
100
C205
1.5
NLC
C153
0.047
R335
15K
R327
8.2K
R326
5.1K
Q301
2SC1740S (R
C311
0.01
MF
C324
0.022
C321
0.022
A-GND
MICIN
A+12V
RCH
LCH
A-GND
D-GND
RM-DV
MUTE
REMOTE
P-SW
CNV-F-ON
MICIN

# Schematic Diagrams

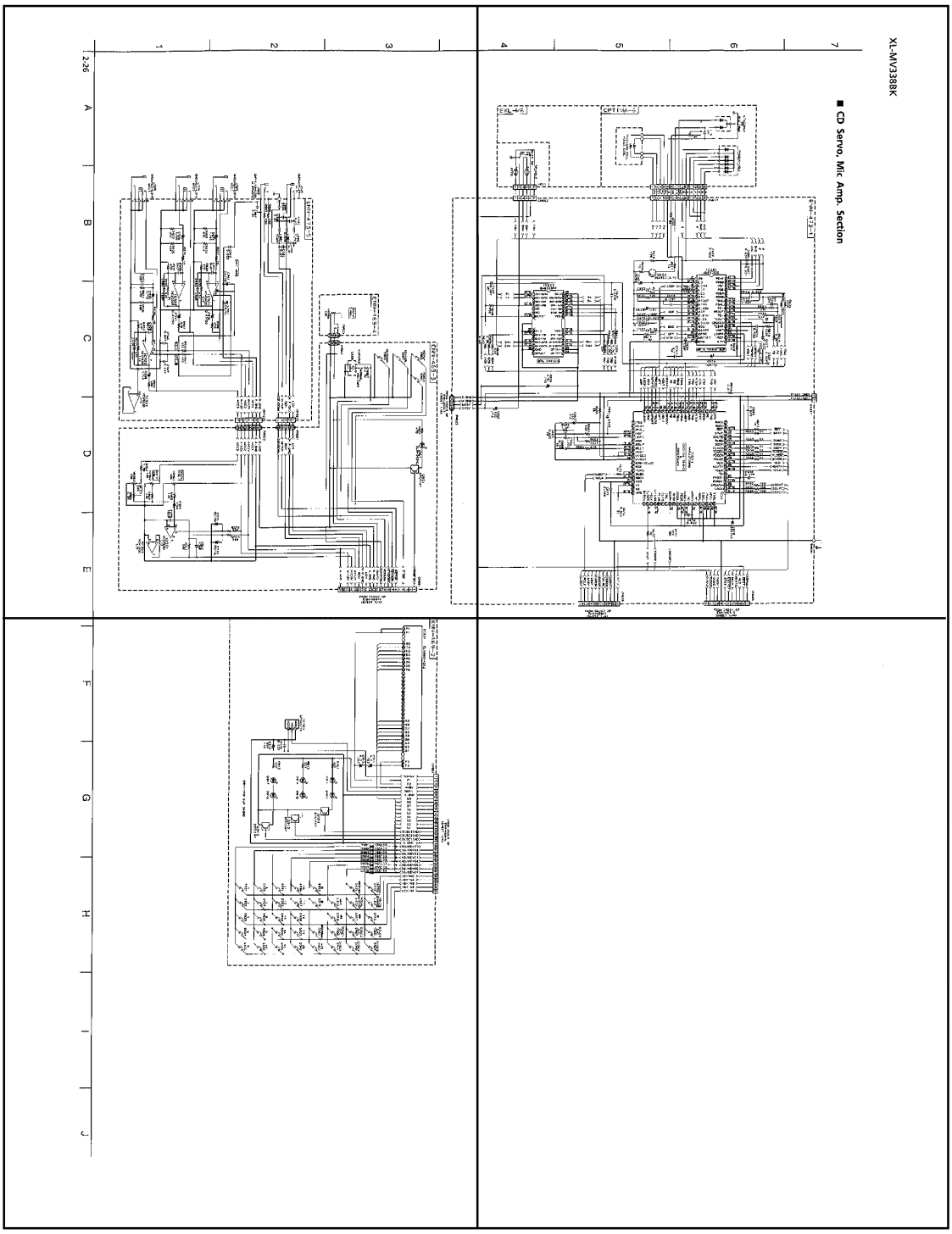
## ■ System Control Front & Power Supply Section



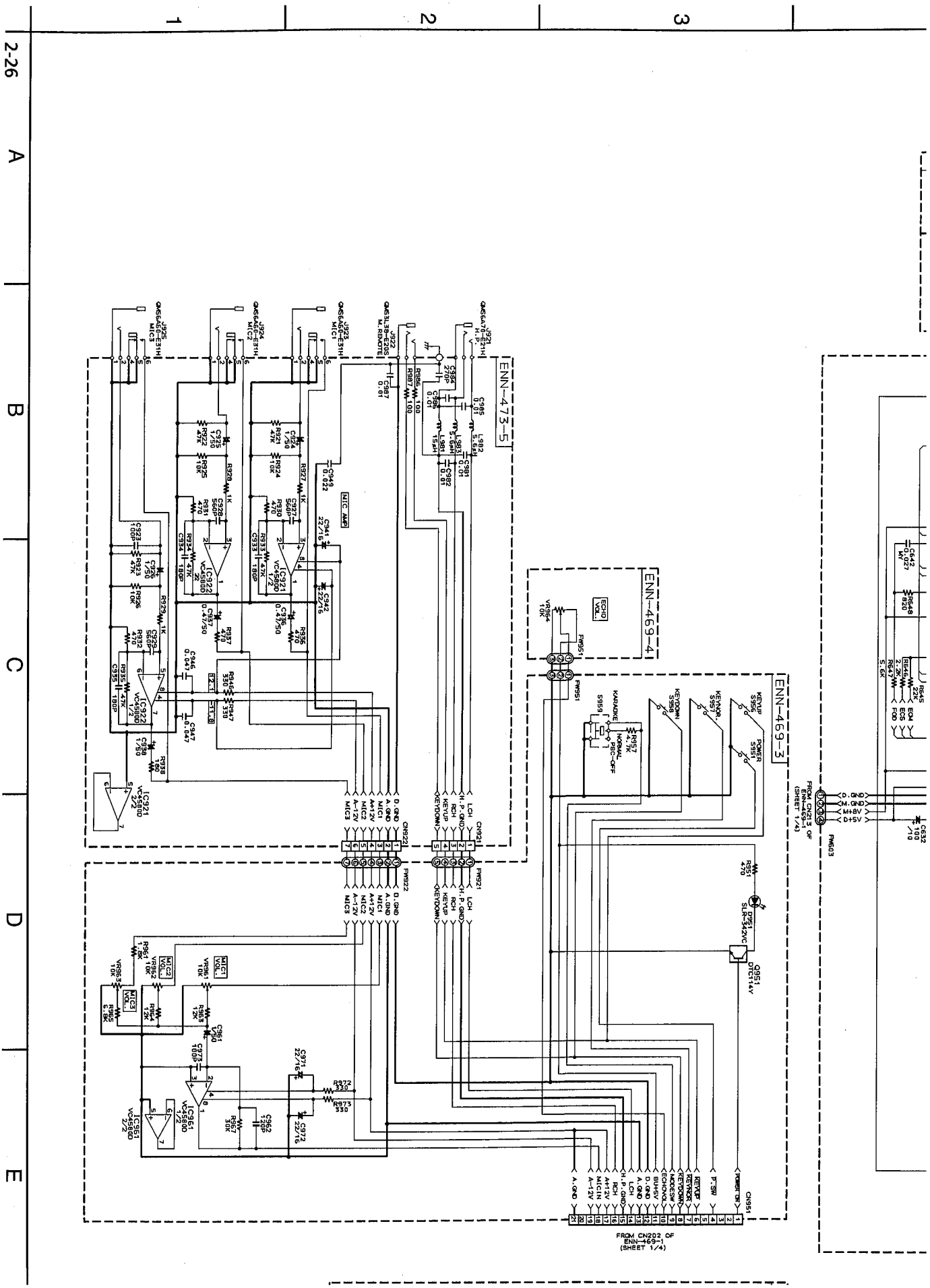

VERSION CODES
UF : CHINA
ENN-473-3
ENN-473-4
PAL AUTO
PAL
NTSC
P101
AC115~127V/
220~240V
50Hz/60Hz
1
2
3
A
B
C
D
E
2-25


TO CN101 OF ENV-004 (SHEET 3/4)
TO CN103 OF ENV-004 (SHEET 3/4)
CN501
CN503
ENN-469-1
RCLK
SUBDT
SFSY
ERROR
D. GND
XCLK
D. GND
DALRC
DABCK
DADAT
D. GND
CDDAT
CDBCK
CDLRC
SBSY
D. GND
D. GND
D+5V
V+5V
CVOUT
R232 390
R233 820
D211 1SS133
D212 1SS133
EXP
R310 10
R453 1K
R454 1K
R452 1K
R311 1K
C318 0.022
C317 220 /6.3
K503
C510 47/10
C509 18PCH
C508 18PCH
X501 ECX0169-344
R513 100
C511 0.1
R515 1K
C512 0.022
LSTRST
R510 16K
C507 0.1
R511 24K
R509 24K
R512 16K
R522 6.8K
R520 3.6K
C522 0.0039
R528 1.6K
C524 0.033
IC502 NJM5532DD (2/2)
R531 3.3K
R536 330
R537 330
C527 100/25
C528 100/25
R529 15K
C526 180P
R508 100
C506 470/6.3
AUDIO LPF
IC501 M3S803 PCM D/A CONVERTER
IC301 2409F-000 RAOKEDSP
DALRC
DABCK
DADAT
LRCKO
BCKO
SDO
MCK1
MCK2
CKS
VDD1
GNDX
R321 1K
R322 1K
R325 1K
LRCLK
BCLK
SDATA
C316 1.0/6.3
C513 0.022
R503 24K
R504
R506 24K
R505 15K
C505 0.1
R530 15K
C525 180P
R527
R532 3.3K

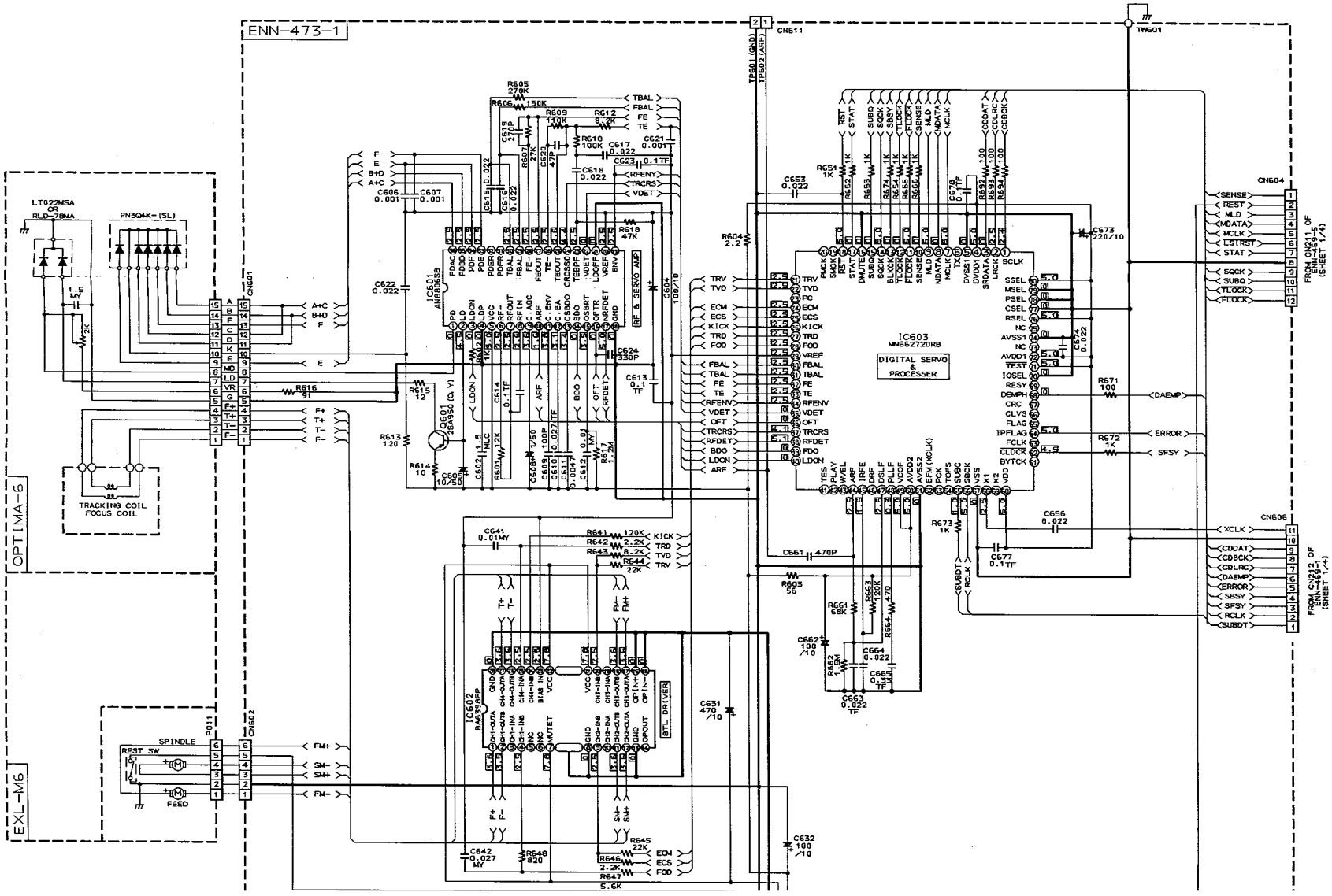
P2-26-a P2-26-b

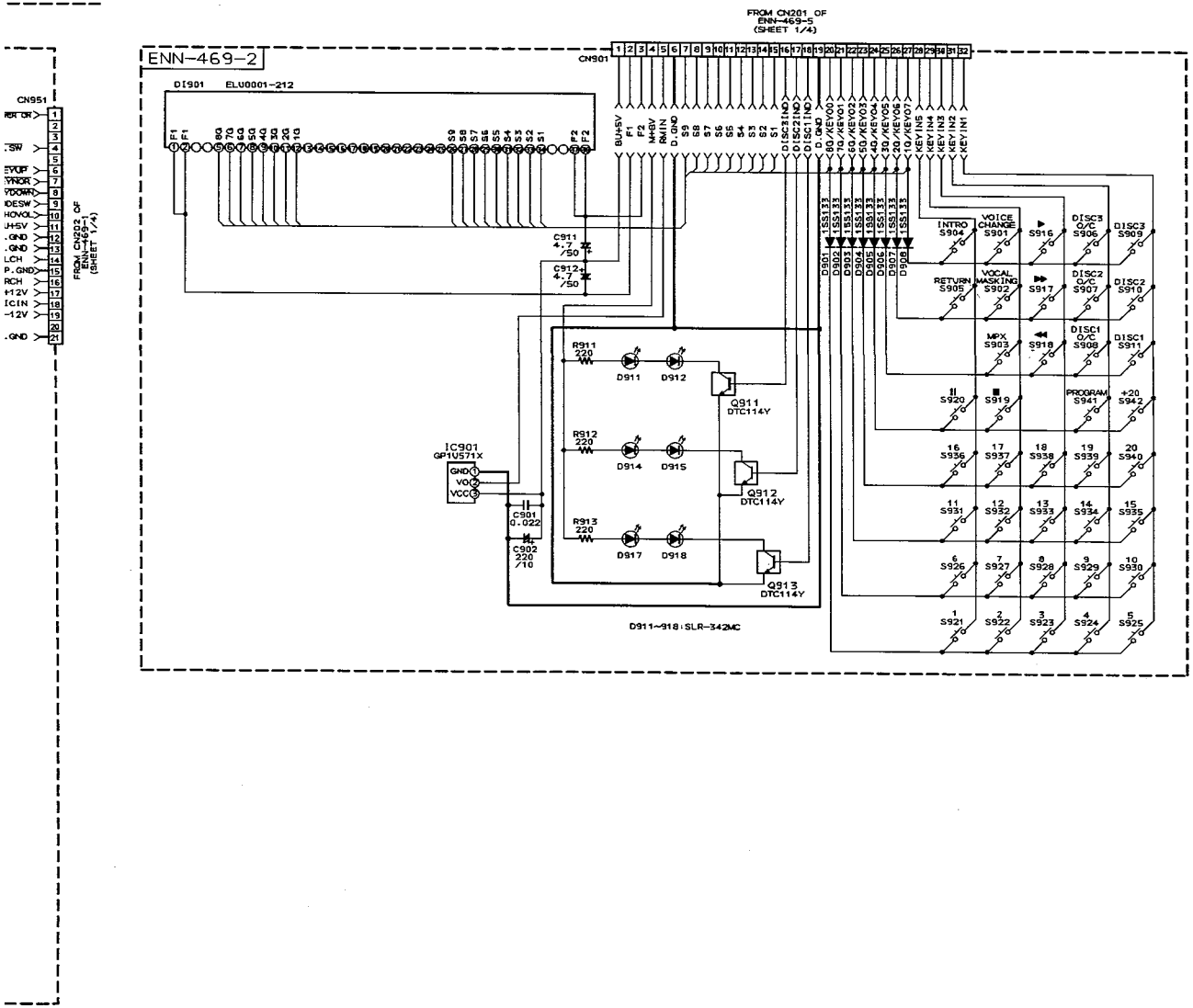



P2-26-c P2-26-d

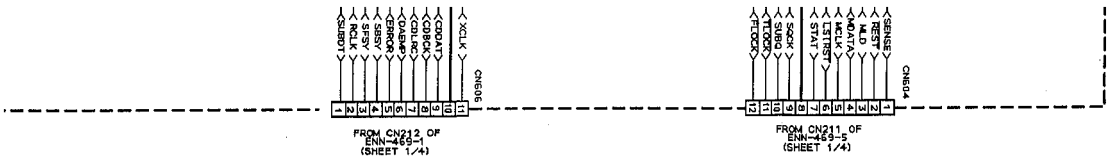

1
2
3
A
B
C
D
E
2-26
ENN-473-5
ENN-469-4
ENN-469-3
MIC AMP
ECHO VOL.
KARAOKE
NORMAL
PRO-OFF
FROM CN202 OF ENN-469-1 (SHEET 1/4)
FROM CN203-1 OF ENN-469-1 (SHEET 1/4)
CN951
CN921
CN922
FW951
FW921
FW922
FW603

## ■ CD Servo, Mic Amp. Section

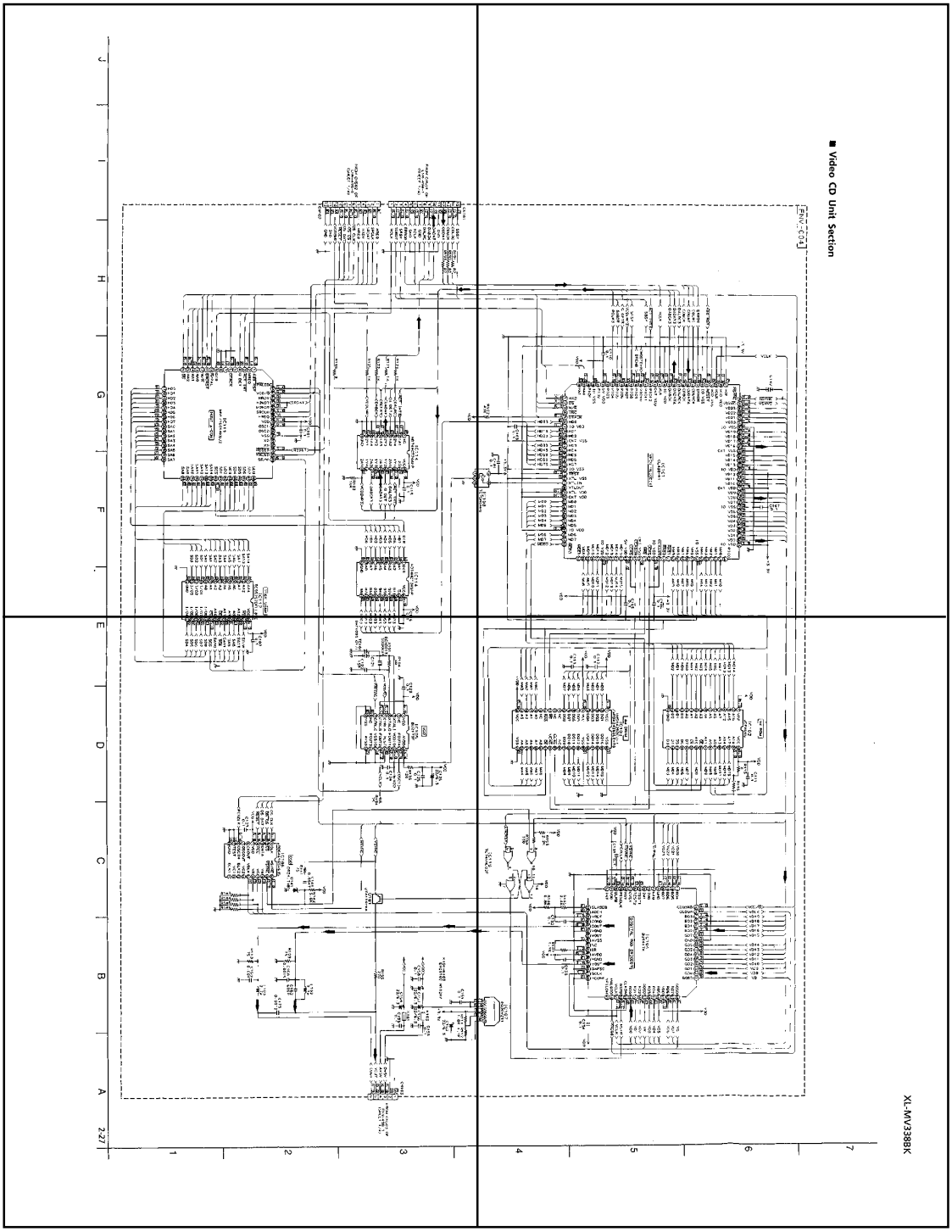



ENN-469-2
FROM CN201 OF ENN-469-5 (SHEET 1/4)
CN901
DI901 ELU0001-212
CN951
FROM CN202 OF ENN-469-1 (SHEET 1/4)
C911 4.7 /50
C912 4.7 /50
R911 220
R912 220
R913 220
D911 D912 D914 D915 D917 D918
Q911 DTC114Y
Q912 DTC114Y
Q913 DTC114Y
IC901 GP1U571X
C901 0.022
C902 220 /10
D911~918:SLR-342MC
INTRO S904
VOICE CHANGE S901
RETURN S905
VOCAL MASKING S902
MPX S903
PROGRAM S941
DISC3 O/C S906
DISC2 O/C S907
DISC1 O/C S908
DISC3 S909
DISC2 S910
DISC1 S911
+20 S942

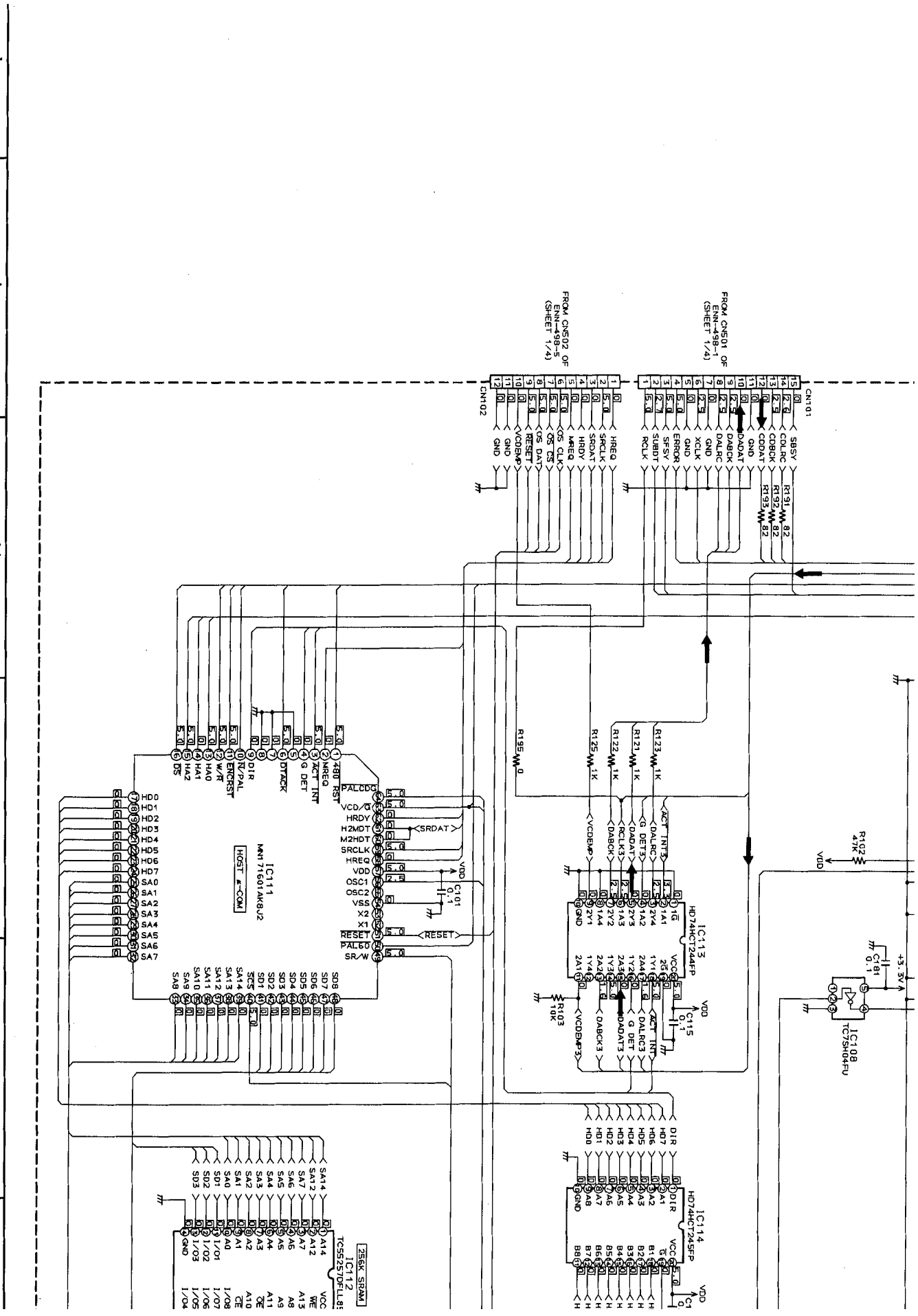
F G H I J


CSUBDT
RCLK
SSSY
ERROR
DABMD
CDLRC
CDBCK
CDDAT
XCLK
CN606
FROM CN212 OF ENN-469-1 (SHEET 1/4)
FLOCK
TTOCK
SUBQ
SQCK
STAT
CSTRST
MCLK
MDATA
MLD
REST
SENSE
CN604
FROM CN211 OF ENN-469-5 (SHEET 1/4)

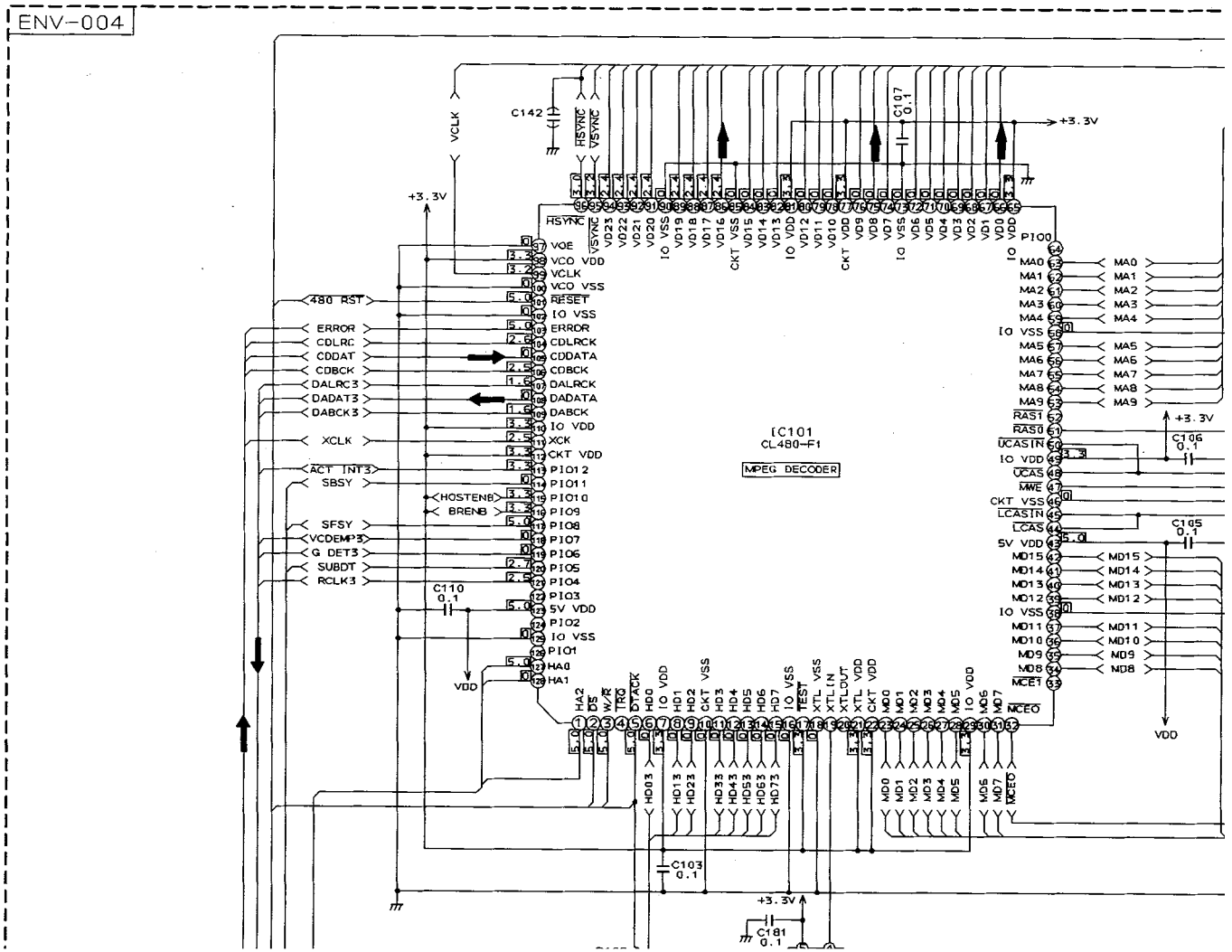
P2-27-a P2-27-b

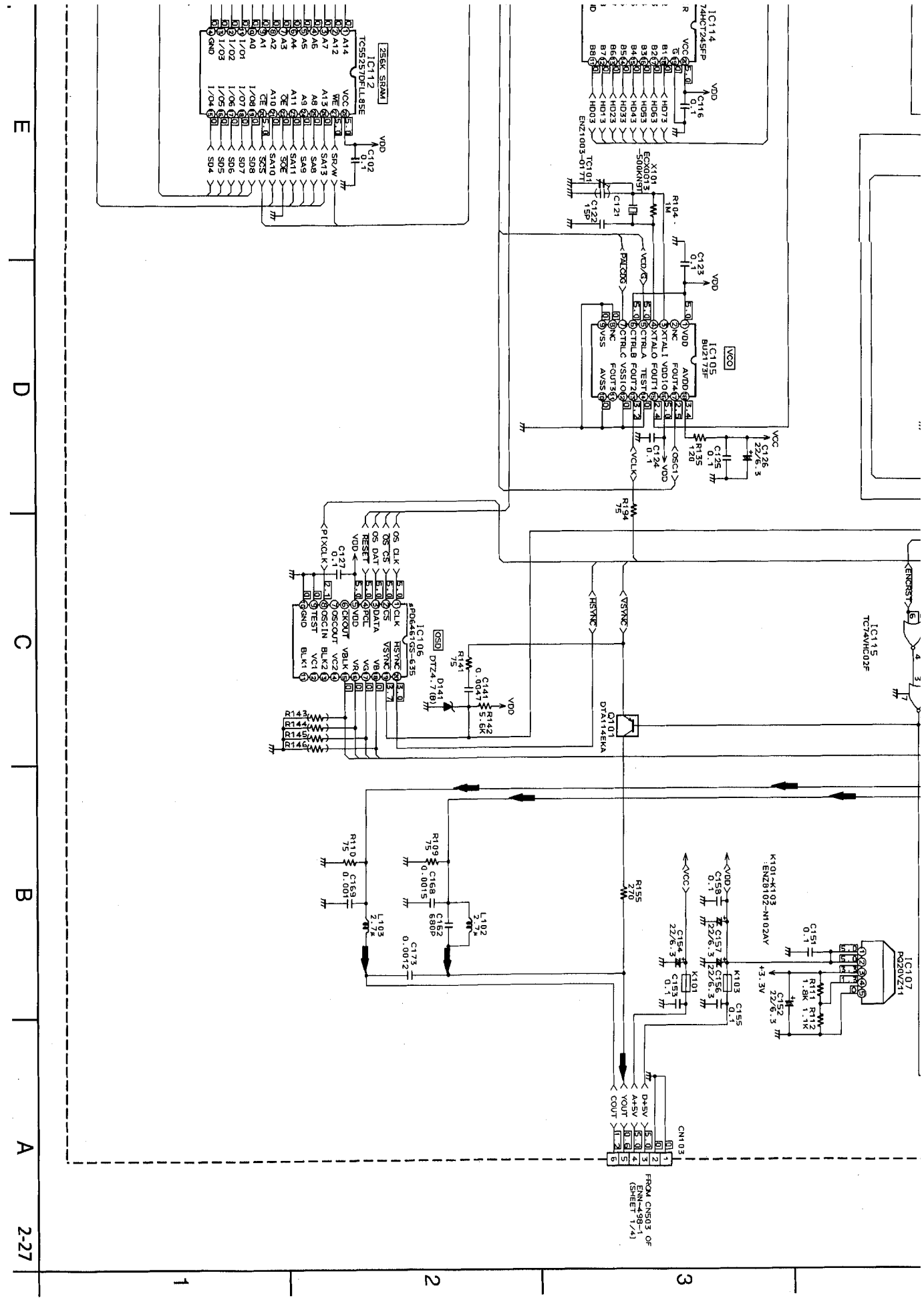


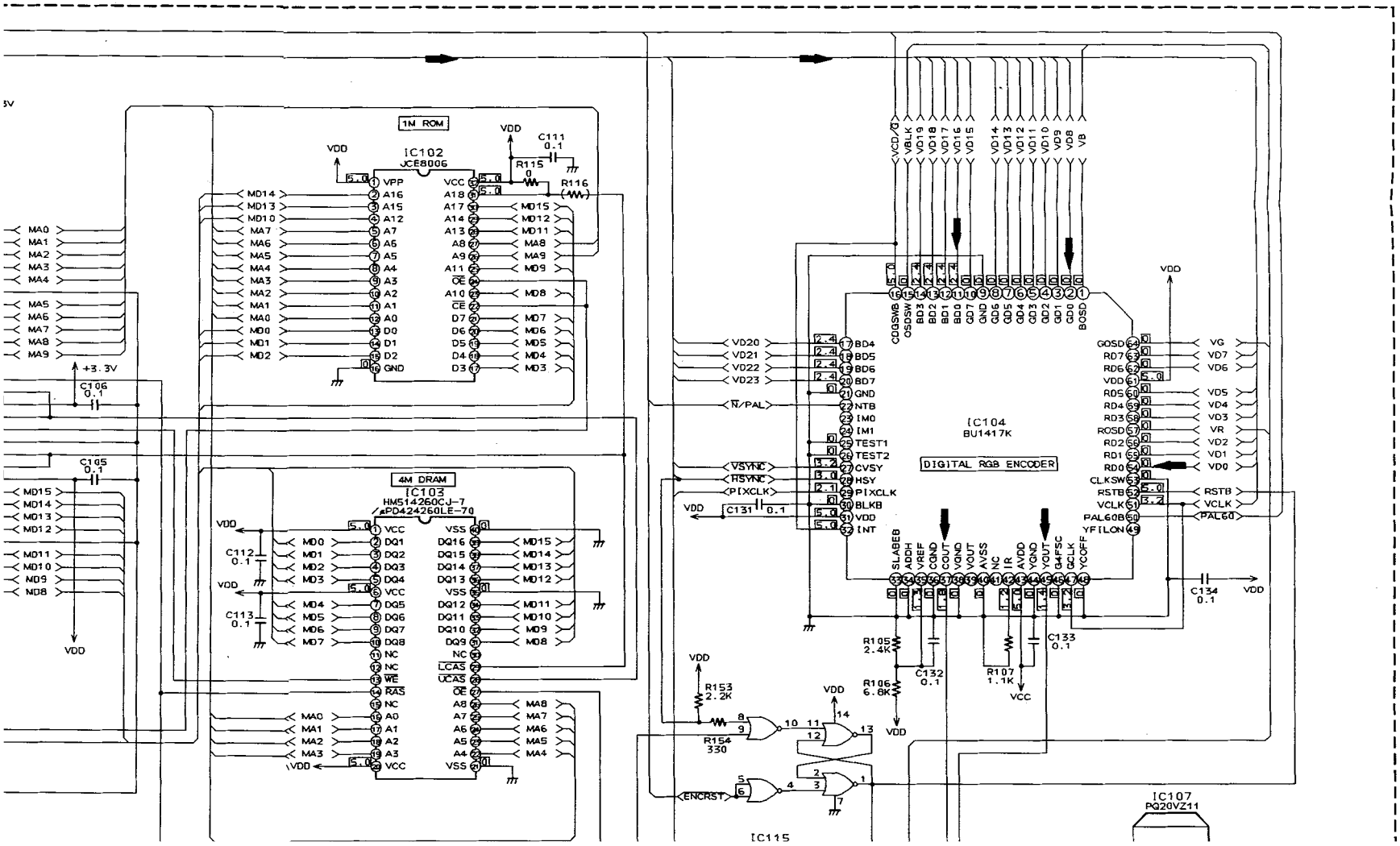

P2-27-c P2-27-d


FROM CN502 OF ENN-498-5 (SHEET 1/4)
FROM CN501 OF ENN-498-1 (SHEET 1/4)
CN102
CN101
IC111
MN71601AK8-J2
HOST I/F-COM
IC113
HD74HCT244FP
IC114
HD74HCT245FP
IC108
TC7SH04FU
IC112
TC55257DFL
256K SRAM
VDD
RESET
SRDAT

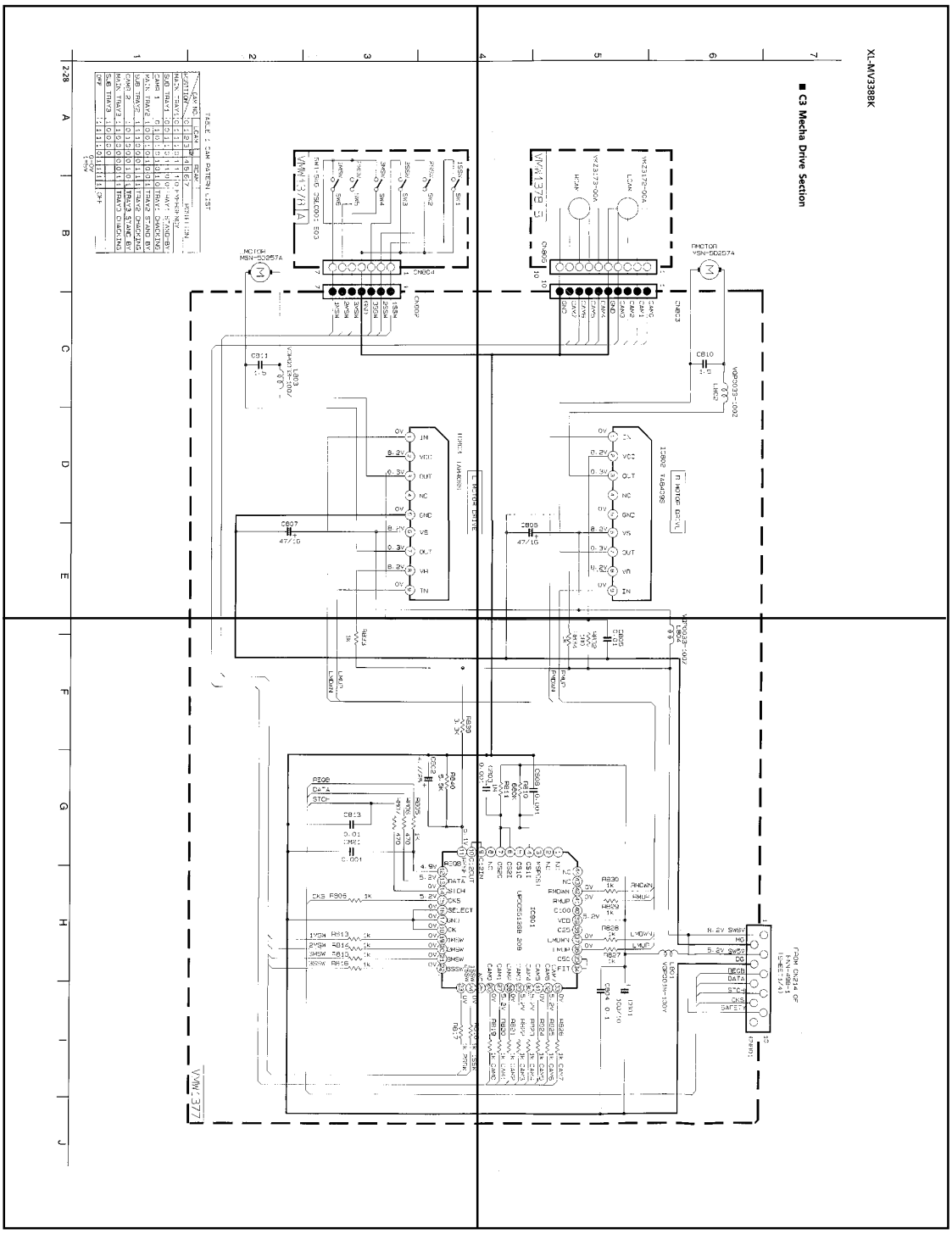
## ■ Video CD Unit Section




IC114
74HCT245FP
IC112
TC5257DFL-85E
256K SRAM
IC105
BU2173F
VCO
X101
ECX0013
500KN9T
IC115
TC74VHC02F
IC106
PD6461GS-635
IC107
PQ20V211
Q101
DTA114EKA
D141
DTZ4.7(B)
CN103
FROM CN503 OF ENN-498-1 (SHEET 1/4)
K101~K103
ENZ8102-N102AY
+3.3V
VDD
VCC
ENCRST
HSYNC
VSYNC
R104
1M
R135
120
R134
75
R141
75
R142
5.6K
C141
0.0047
R155
270
R109
75
R110
75
C168
0.0015
C169
0.001
C173
0.0012
L102
2.2μ
L103
2.2μ
C157
22/6.3
C156
22/6.3
C152
22/6.3
C154
22/6.3
C125
0.1
C126
22/6.3
C127
0.1
C121
C122
15P
C123
0.1
C124
0.1
C151
0.1
C153
0.1
C155
0.1
C158
0.1
C116
0.1
C102
0.1
R111
1.8K
R112
1.1K
R143
R144
R145
R146


1M ROM
IC102
JCE8006
4M DRAM
IC103
HM514260CJ-7
μPD424260LE-70
IC104
BU1417K
DIGITAL RGB ENCODER
IC107
PQ20VZ11
IC115
VDD
+3.3V
ENCRST
R153 2.2K
R154 330
R105 2.4K
R106 6.8K
R107 1.1K
C131 0.1
C132 0.1
C133 0.1
C134 0.1

P2-28-a P2-28-b




P2-28-c P2-28-d

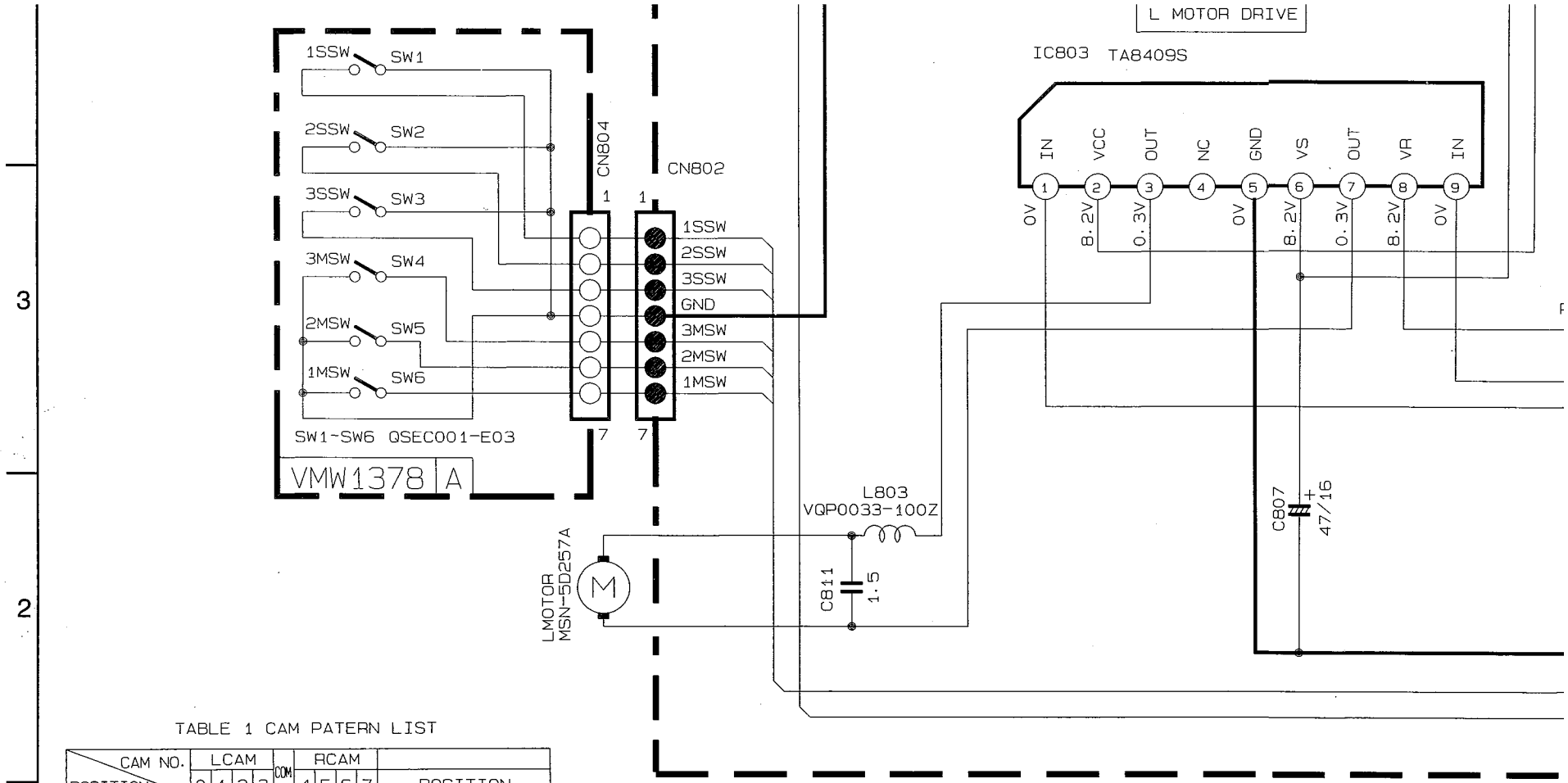
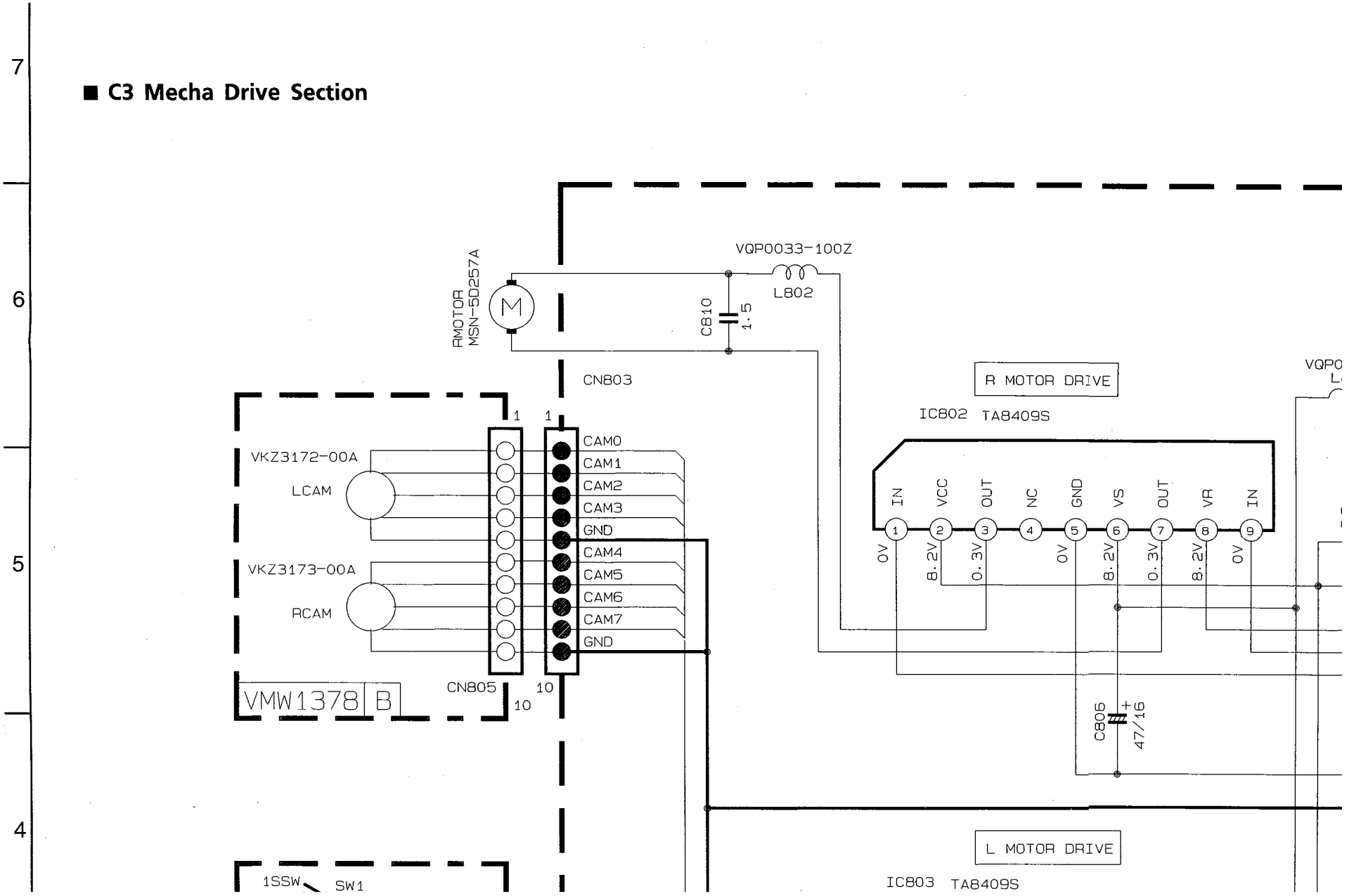


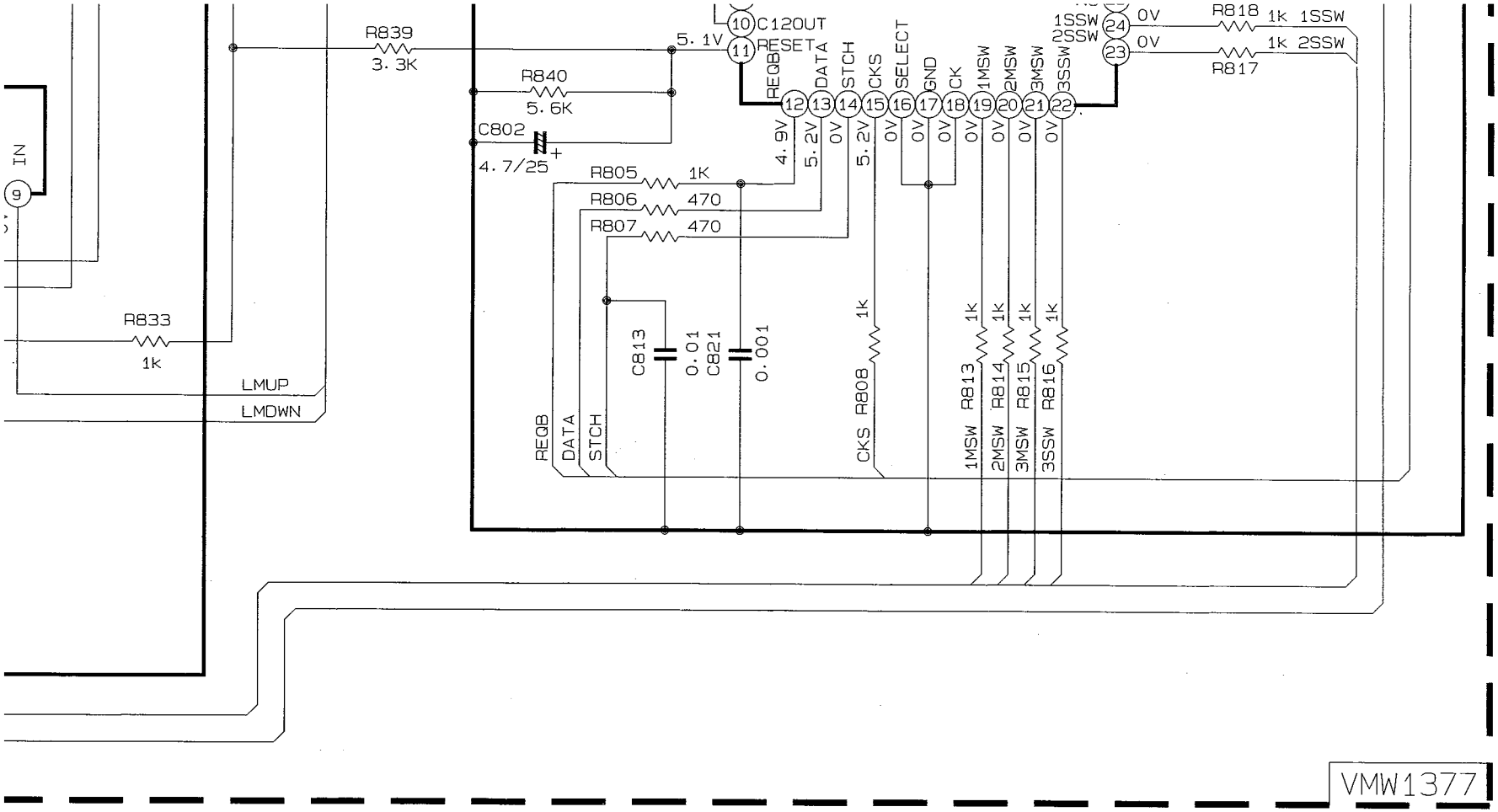

TABLE 1 CAM PATERN LIST

| CAM NO. / POSITION | LCAM 0 | 1 | 2 | 3 | COM | RCAM 4 | 5 | 6 | 7 | POSITION |
|---|---|---|---|---|---|---|---|---|---|---|
| MAIN TRAY1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | EMERGENCY |
| SUB TRAY1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | TRAY1 STAND-BY |
| CAMR 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | TRAY1 CHACKING |
| MAIN TRAY2 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | TRAY2 STAND-BY |
| SUB TRAY2 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | TRAY2 CHACKING |
| CAMR 2 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | TRAY3 STAND-BY |
| MAIN TRAY3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | TRAY3 CHACKING |
| SUB TRAY3 | 1 | 0 | 0 | 0 | 0 | | | | | |
| OFF | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | OFF |

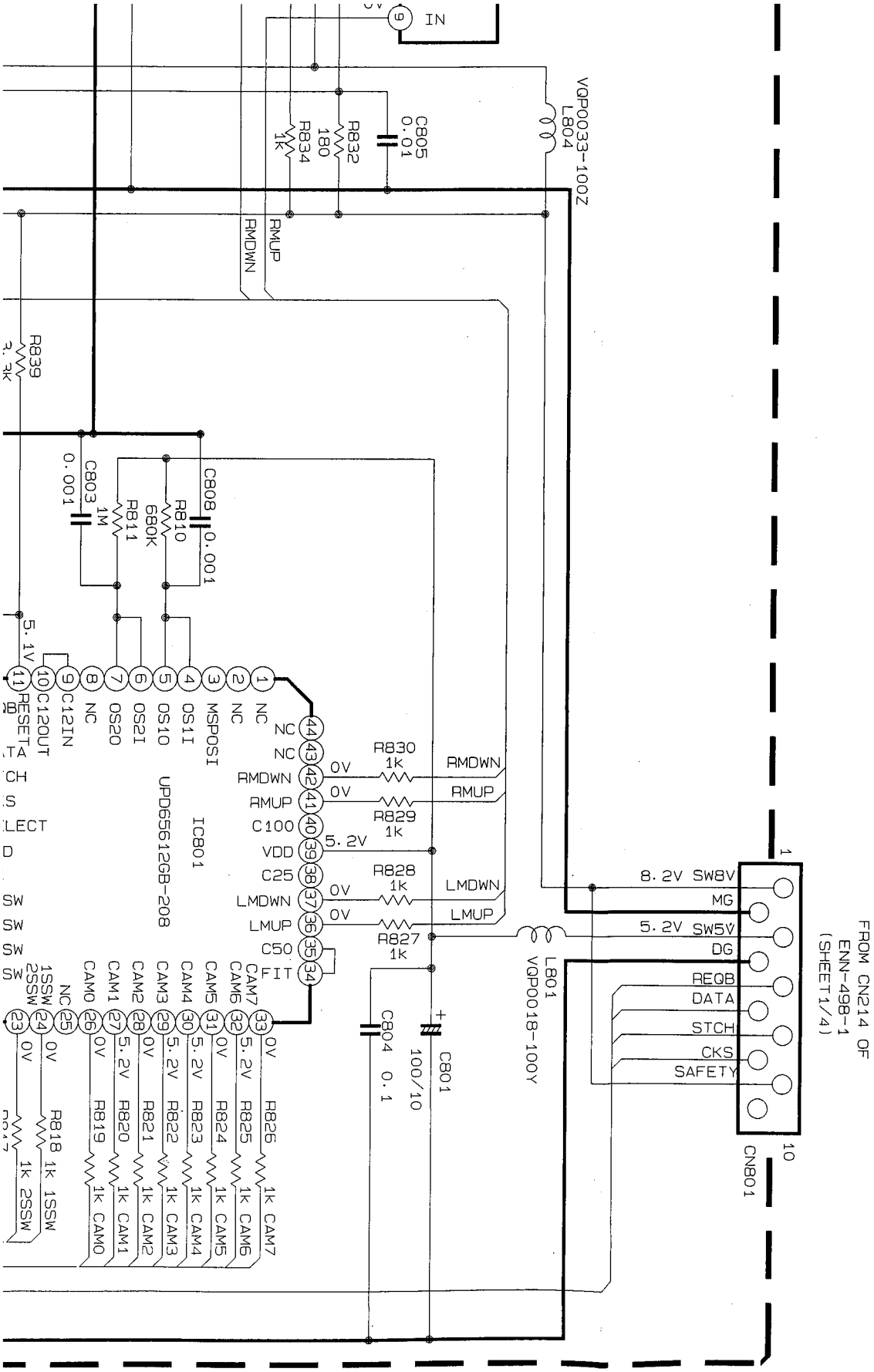
0=0V
1=5V

## ■ C3 Mecha Drive Section



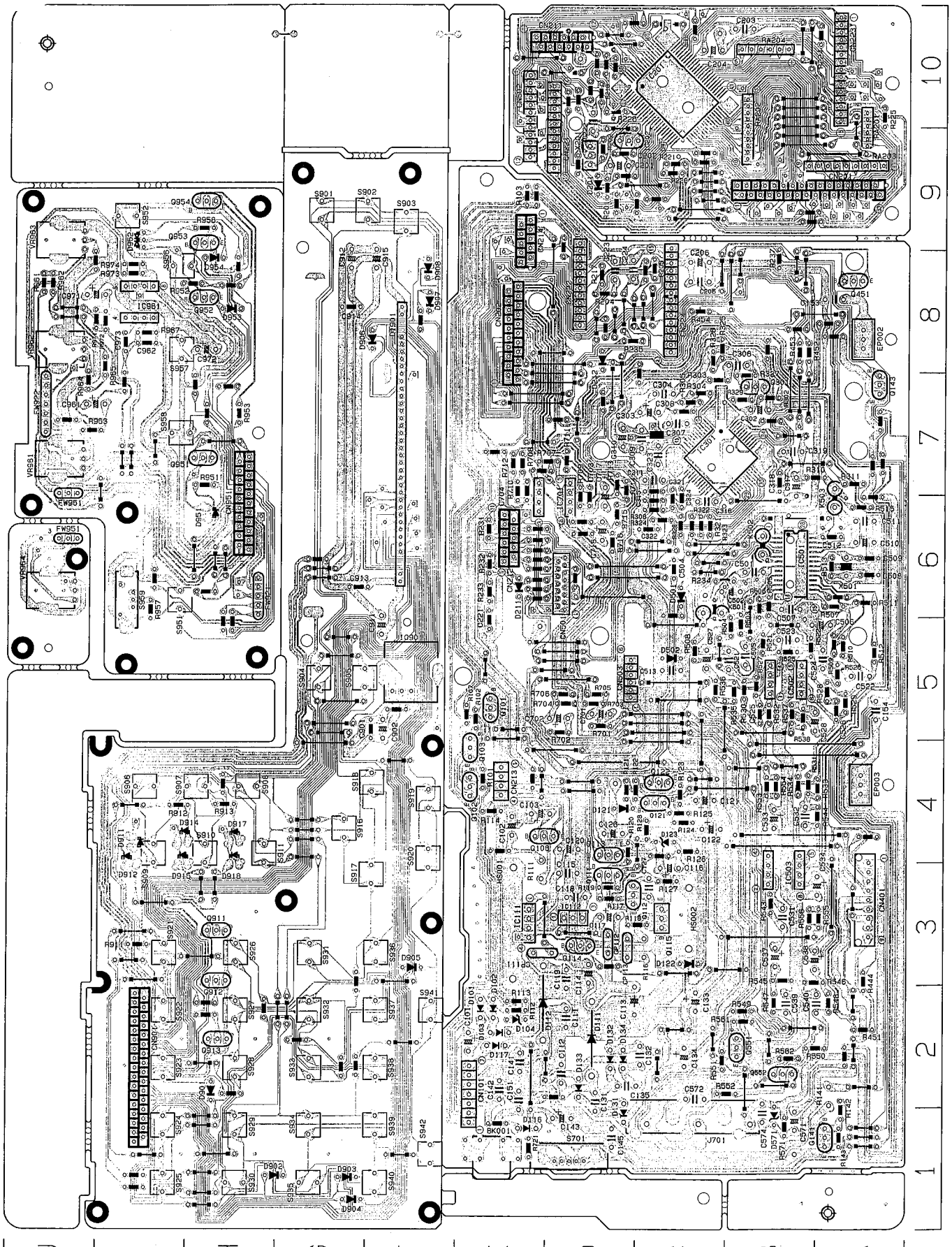

R839
3.3K
R840
5.6K
C802
4.7/25
5.1V
10 C120UT
11 RESET
REQB
DATA
STCH
CKS
SELECT
GND
CK
1MSW
2MSW
3MSW
3SSW
1SSW
2SSW
12 13 14 15 16 17 18 19 20 21 22
24
23
0V
R818 1k 1SSW
R817 1k 2SSW
4.9V
5.2V
0V
5.2V
R805 1K
R806 470
R807 470
C813
0.01
C821
0.001
R808 1k
R813 1k
R814 1k
R815 1k
R816 1k
REQB
DATA
STCH
CKS R808
1MSW R813
2MSW R814
3MSW R815
3SSW R816
9
IN
R833
1k
LMUP
LMDWN
VMW1377

F G H I J


IN
VQP0033-100Z
L804
C805
0.01
R832
180
R834
1k
RMUP
RMDWN
R839
3.3k
C808
0.001
R810
680K
R811
1M
C803
0.001
5.1V
RESET
C12OUT
C12IN
NC
OS20
OS2I
OS10
OS1I
MSPOSI
NC
NC
IC801
UPD65612GB-208
R830
1k
R829
1k
R828
1k
R827
1k
0V
5.2V
RMDWN
RMUP
LMDWN
LMUP
C100
VDD
C25
C50
FIT
L801
VQP0018-100Y
C804
0.1
C801
100/10
8.2V SW8V
MG
5.2V SW5V
DG
REQB
DATA
STCH
CKS
SAFETY
CN801
FROM CN214 OF
ENN-498-1
(SHEET1/4)
R826
1k CAM7
R825
1k CAM6
R824
1k CAM5
R823
1k CAM4
R822
1k CAM3
R821
1k CAM2
R820
1k CAM1
R819
1k CAM0
R818
1k 1SSW
1k 2SSW
CAM7
CAM6
CAM5
CAM4
CAM3
CAM2
CAM1
CAM0
NC
1SSW
2SSW

# Printed Circuit Boards

## ■ System Control, Front & Power Supply P.C. Board (ENN-469)



| Symbol | X | Y |
|---|---|---|
| C101 | 2 | E |
| C102 | 4 | E |
| C103 | 4 | E |
| C111 | 2 | D |
| C112 | 2 | D |
| C113 | 2 | D |
| C114 | 3 | D |
| C115 | 3 | D |
| C116 | 3 | C |
| C117 | 3 | D |
| C118 | 3 | D |
| C119 | 2 | D |
| C120 | 4 | D |
| C121 | 4 | C |
| C122 | 4 | C |
| C126 | 4 | D |
| C127 | 3 | C |
| C131 | 1 | D |
| C132 | 2 | C |
| C133 | 2 | C |
| C134 | 2 | C |
| C135 | 2 | D |
| C141 | 2 | E |
| C142 | 2 | E |
| C143 | 1 | D |
| C145 | 1 | D |
| C151 | 2 | E |
| C153 | 8 | A |
| C154 | 5 | A |
| C201 | 9 | D |
| C202 | 9 | D |
| C203 | 10 | B |
| C204 | 10 | C |
| C205 | 8 | C |
| C206 | 8 | C |
| C221 | 5 | E |
| C222 | 10 | D |
| C223 | 8 | D |
| C224 | 8 | D |
| C302 | 7 | B |
| C303 | 7 | C |
| C304 | 7 | C |
| C306 | 8 | C |
| C307 | 7 | C |
| C308 | 7 | C |
| C309 | 7 | C |
| C310 | 7 | D |
| C311 | 7 | C |
| C315 | 6 | C |
| C316 | 6 | C |
| C317 | 7 | B |
| C318 | 7 | B |
| C319 | 7 | B |
| C321 | 7 | C |
| C322 | 6 | C |
| C323 | 7 | C |
| C324 | 7 | C |
| C501 | 6 | B |

| Symbol | X | Y |
|---|---|---|
| C502 | 6 | C |
| C504 | 6 | C |
| C505 | 5 | B |
| C506 | 5 | B |
| C507 | 6 | B |
| C508 | 6 | A |
| C509 | 6 | A |
| C510 | 6 | A |
| C511 | 6 | A |
| C512 | 6 | A |
| C513 | 5 | C |
| C521 | 5 | B |
| C522 | 5 | A |
| C523 | 5 | B |
| C524 | 5 | A |
| C525 | 5 | B |
| C526 | 5 | A |
| C527 | 5 | C |
| C528 | 5 | B |
| C531 | 3 | B |
| C532 | 4 | B |
| C533 | 4 | B |
| C534 | 3 | A |
| C537 | 3 | B |
| C538 | 3 | B |
| C539 | 2 | B |
| C540 | 2 | A |
| C571 | 1 | B |
| C572 | 2 | C |
| C574 | 1 | B |
| C701 | 5 | D |
| C702 | 5 | D |
| C703 | 6 | D |
| C704 | 6 | E |
| C717 | 7 | D |
| C718 | 6 | D |
| C901 | 5 | F |
| C902 | 5 | F |
| C911 | 6 | F |
| C912 | 8 | G |
| C913 | 6 | G |
| C914 | 8 | G |
| C915 | 8 | F |
| C961 | 7 | J |
| C962 | 8 | I |
| C971 | 8 | J |
| C972 | 8 | H |
| C973 | 8 | I |
| CN101 | 2 | E |
| CN201 | 9 | A |
| CN202 | 8 | E |
| CN211 | 10 | D |
| CN212 | 6 | E |
| CN213 | 4 | E |
| CN214 | 8 | E |
| CN221 | 10 | D |
| CN222 | 9 | D |
| CN223 | 10 | A |

| Symbol | X | Y |
|---|---|---|
| CN224 | 8 | C |
| CN224A | 9 | C |
| CN401 | 3 | A |
| CN501 | 6 | D |
| CN502 | 9 | E |
| CN503 | 5 | D |
| CN901 | 1 | I |
| CN951 | 7 | H |
| D101 | 2 | E |
| D102 | 2 | E |
| D103 | 2 | E |
| D104 | 2 | E |
| D111 | 2 | D |
| D112 | 2 | E |
| D116 | 1 | E |
| D117 | 2 | E |
| D121 | 4 | D |
| D122 | 3 | C |
| D123 | 4 | C |
| D131 | 2 | D |
| D132 | 2 | D |
| D133 | 2 | D |
| D134 | 2 | D |
| D201 | 9 | D |
| D211 | 6 | E |
| D212 | 8 | D |
| D501 | 6 | C |
| D502 | 5 | C |
| D571 | 2 | B |
| D901 | 2 | H |
| D902 | 1 | H |
| D903 | 1 | G |
| D904 | 1 | G |
| D905 | 3 | F |
| D906 | 8 | F |
| D907 | 8 | F |
| D908 | 8 | F |
| D911 | 4 | I |
| D912 | 3 | I |
| D914 | 4 | I |
| D915 | 3 | I |
| D917 | 4 | H |
| D918 | 3 | H |
| D951 | 6 | H |
| D952 | 9 | I |
| D953 | 8 | H |
| D954 | 8 | H |
| D1901 | 8 | F |
| FW921 | 6 | H |
| FW922 | 7 | J |
| FW951A | 6 | J |
| FW951B | 7 | J |
| IC111 | 3 | E |
| IC112 | 3 | D |
| IC201 | 10 | C |
| IC202 | 9 | D |
| IC301 | 7 | C |
| IC501 | 6 | B |

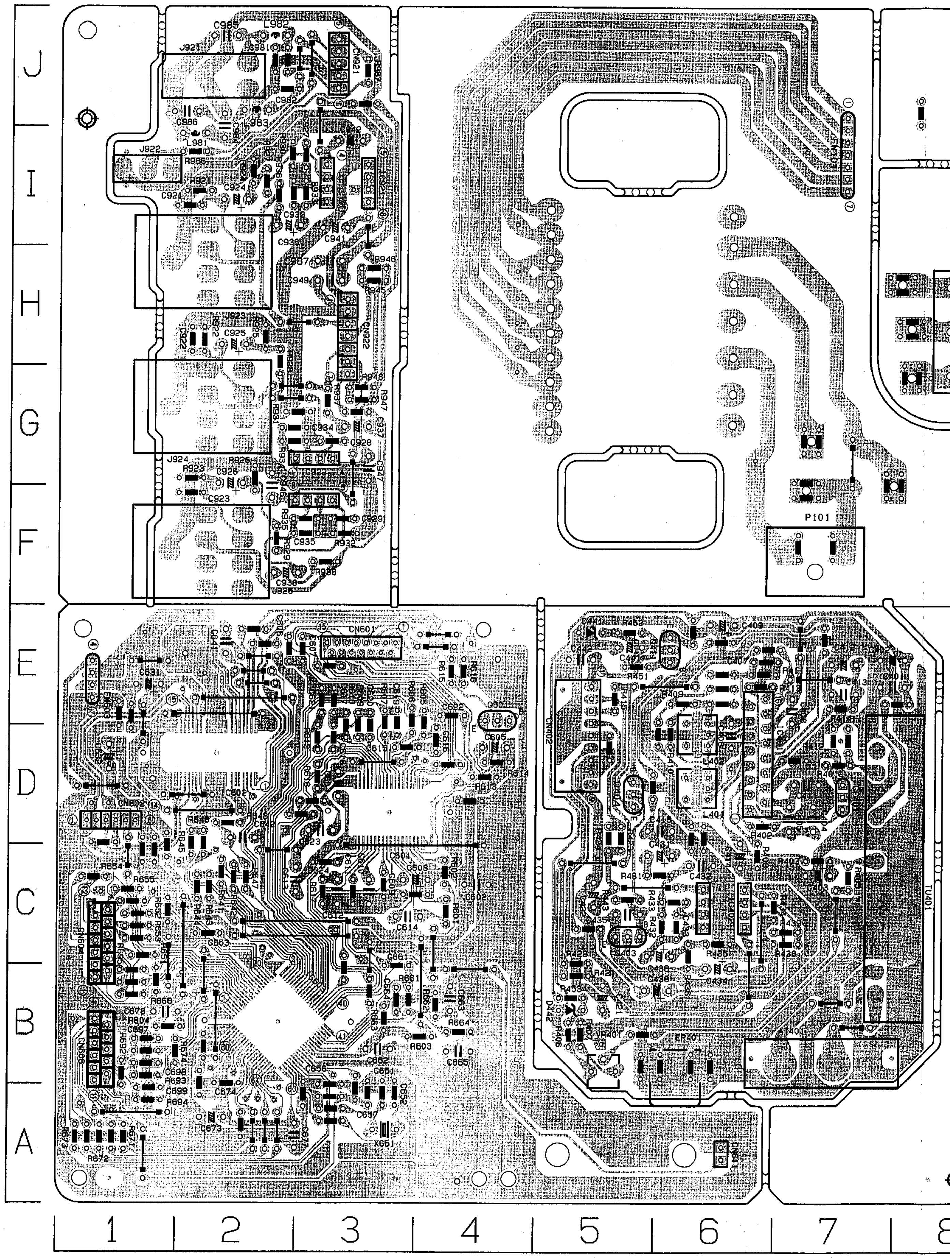
| Symbol | X | Y |
|---|---|---|
| IC502 | 5 | B |
| IC503 | 3 | B |
| IC701 | 6 | E |
| IC901 | 5 | F |
| IC961 | 8 | I |
| J701 | 1 | B |
| K501 | 6 | C |
| K502 | 6 | B |
| K503 | 6 | A |
| Q101 | 5 | E |
| Q102 | 4 | E |
| Q103 | 5 | E |
| Q106 | 4 | E |
| Q111 | 3 | D |
| Q112 | 3 | D |
| Q113 | 4 | D |
| Q114 | 3 | D |
| Q115 | 3 | C |
| Q121 | 4 | C |
| Q122 | 4 | C |
| Q141 | 1 | A |
| Q143 | 7 | A |
| Q301 | 7 | B |
| Q451 | 8 | A |
| Q551 | 2 | B |
| Q552 | 2 | B |
| Q911 | 3 | H |
| Q912 | 3 | H |
| Q913 | 2 | H |
| Q951 | 7 | H |
| Q952 | 8 | H |
| Q953 | 9 | H |
| Q954 | 9 | H |
| R101 | 4 | E |
| R102 | 5 | E |
| R103 | 9 | E |
| R107 | 5 | E |
| R111 | 3 | E |
| R112 | 2 | E |
| R113 | 2 | E |
| R114 | 4 | E |
| R116 | 3 | C |
| R117 | 3 | D |
| R118 | 3 | D |
| R119 | 3 | D |
| R120 | 4 | D |
| R121 | 4 | D |
| R122 | 4 | D |
| R123 | 4 | C |
| R124 | 4 | C |
| R125 | 4 | C |
| R126 | 4 | C |
| R127 | 3 | C |
| R128 | 4 | C |
| R141 | 2 | A |
| R142 | 1 | A |
| R143 | 1 | A |
| R201 | 9 | D |

| Symbol | X | Y |
|---|---|---|
| R202 | 9 | D |
| R204 | 8 | D |
| R205 | 8 | C |
| R217 | 8 | D |
| R218 | 10 | D |
| R221 | 9 | C |
| R222 | 9 | C |
| R224 | 10 | B |
| R225 | 10 | A |
| R226 | 10 | D |
| R231 | 6 | E |
| R232 | 6 | E |
| R233 | 6 | E |
| R234 | 6 | C |
| R235 | 8 | C |
| R237 | 9 | B |
| R302 | 7 | B |
| R303 | 7 | C |
| R304 | 7 | C |
| R305 | 7 | C |
| R308 | 6 | C |
| R310 | 7 | B |
| R311 | 7 | A |
| R321 | 6 | C |
| R322 | 6 | C |
| R323 | 6 | C |
| R324 | 6 | C |
| R325 | 8 | C |
| R326 | 8 | C |
| R327 | 7 | B |
| R328 | 6 | C |
| R329 | 7 | B |
| R444 | 3 | A |
| R451 | 2 | A |
| R452 | 8 | B |
| R453 | 8 | B |
| R454 | 8 | C |
| R503 | 6 | B |
| R504 | 5 | B |
| R505 | 6 | B |
| R506 | 6 | B |
| R507 | 6 | A |
| R508 | 5 | C |
| R509 | 5 | A |
| R510 | 5 | A |
| R511 | 6 | A |
| R512 | 5 | A |
| R513 | 6 | A |
| R515 | 6 | A |
| R521 | 5 | B |
| R522 | 5 | B |
| R525 | 5 | B |
| R526 | 5 | A |
| R527 | 5 | B |
| R528 | 5 | A |
| R529 | 5 | A |
| R530 | 5 | B |
| R531 | 4 | B |

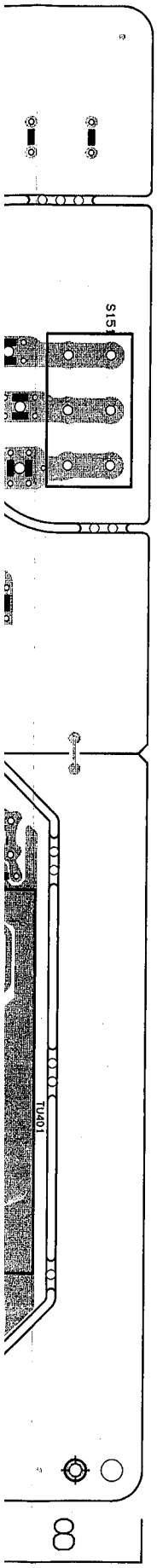
| Symbol | X | Y |
|---|---|---|
| R532 | 5 | B |
| R533 | 4 | A |
| R534 | 4 | B |
| R535 | 5 | B |
| R536 | 5 | C |
| R537 | 5 | B |
| R538 | 5 | B |
| R543 | 3 | B |
| R544 | 4 | A |
| R545 | 3 | B |
| R546 | 3 | B |
| R547 | 2 | B |
| R548 | 2 | A |
| R549 | 2 | B |
| R550 | 2 | A |
| R551 | 2 | C |
| R552 | 2 | B |
| R553 | 4 | B |
| R554 | 4 | B |
| R555 | 3 | A |
| R556 | 3 | B |
| R561 | 2 | B |
| R562 | 2 | B |
| R571 | 1 | B |
| R701 | 5 | D |
| R702 | 5 | D |
| R703 | 5 | D |
| R704 | 5 | D |
| R705 | 5 | D |
| R706 | 5 | D |
| R707 | 7 | E |
| R708 | 7 | E |
| R709 | 6 | D |
| R710 | 6 | E |
| R711 | 7 | D |
| R712 | 7 | E |
| R713 | 7 | D |
| R714 | 7 | D |
| R715 | 6 | D |
| R716 | 6 | D |
| R721 | 1 | E |
| R911 | 3 | I |
| R912 | 4 | I |
| R913 | 4 | H |
| R951 | 7 | H |
| R952 | 8 | I |
| R953 | 7 | H |
| R957 | 5 | I |
| R958 | 9 | H |
| R961 | 8 | J |
| R962 | 8 | J |
| R963 | 7 | J |
| R964 | 8 | J |
| R965 | 8 | I |
| R967 | 8 | I |
| R971 | 8 | J |
| R972 | 8 | I |
| R973 | 8 | I |

| Symbol | X | Y |
|---|---|---|
| R974 | 8 | I |
| RA201 | 10 | A |
| RA202 | 10 | B |
| RA203 | 9 | A |
| RA204 | 10 | B |
| S701 | 1 | D |
| S901 | 9 | G |
| S902 | 9 | G |
| S903 | 9 | F |
| S904 | 5 | G |
| S905 | 5 | G |
| S906 | 4 | I |
| S907 | 4 | H |
| S908 | 4 | H |
| S909 | 4 | I |
| S910 | 4 | H |
| S911 | 4 | H |
| S916 | 4 | G |
| S917 | 3 | F |
| S918 | 4 | F |
| S919 | 4 | F |
| S920 | 4 | F |
| S921 | 3 | I |
| S922 | 2 | I |
| S923 | 2 | I |
| S924 | 1 | I |
| S925 | 1 | I |
| S926 | 3 | H |
| S927 | 2 | H |
| S928 | 2 | H |
| S929 | 1 | H |
| S930 | 1 | H |
| S931 | 3 | G |
| S932 | 2 | G |
| S933 | 2 | G |
| S934 | 1 | G |
| S935 | 1 | G |
| S936 | 3 | F |
| S937 | 2 | F |
| S938 | 2 | F |
| S939 | 1 | F |
| S940 | 1 | F |
| S941 | 2 | F |
| S942 | 1 | F |
| S951 | 6 | I |
| S952 | 9 | I |
| S956 | 8 | I |
| S957 | 8 | I |
| S958 | 7 | I |
| S959 | 6 | I |
| X201 | 9 | D |
| X501 | 6 | A |

## ■ CD Servo, Wiress Tuner & Mic. Amp. P.C. Board (ENN-473)



# Location List ( ENN-473 )




| Symbol | X | Y |
|---|---|---|
| C401 | 7 | E |
| C402 | 8 | E |
| C403 | 7 | C |
| C404 | 7 | D |
| C405 | 7 | D |
| C406 | 6 | D |
| C407 | 7 | E |
| C408 | 7 | E |
| C409 | 6 | E |
| C411 | 7 | D |
| C412 | 7 | E |
| C413 | 7 | E |
| C414 | 6 | D |
| C415 | 5 | D |
| C421 | 5 | B |
| C422 | 5 | C |
| C431 | 6 | C |
| C432 | 6 | C |
| C433 | 6 | C |
| C434 | 6 | B |
| C435 | 5 | C |
| C436 | 6 | C |
| C438 | 6 | B |
| C441 | 5 | E |
| C442 | 5 | E |
| C602 | 4 | C |
| C604 | 3 | D |
| C605 | 4 | D |
| C606 | 2 | E |
| C607 | 3 | E |
| C608 | 4 | C |
| C609 | 3 | C |
| C610 | 3 | C |
| C611 | 3 | C |
| C612 | 3 | C |
| C613 | 2 | C |
| C614 | 3 | C |
| C615 | 3 | D |
| C616 | 4 | D |
| C617 | 3 | E |
| C618 | 3 | D |
| C619 | 3 | E |
| C620 | 3 | E |
| C621 | 3 | E |
| C622 | 4 | E |
| C623 | 3 | D |
| C624 | 3 | C |
| C631 | 1 | E |
| C632 | 1 | D |
| C641 | 2 | E |
| C642 | 2 | D |
| C651 | 3 | B |
| C652 | 3 | B |
| C653 | 2 | C |
| C656 | 3 | A |

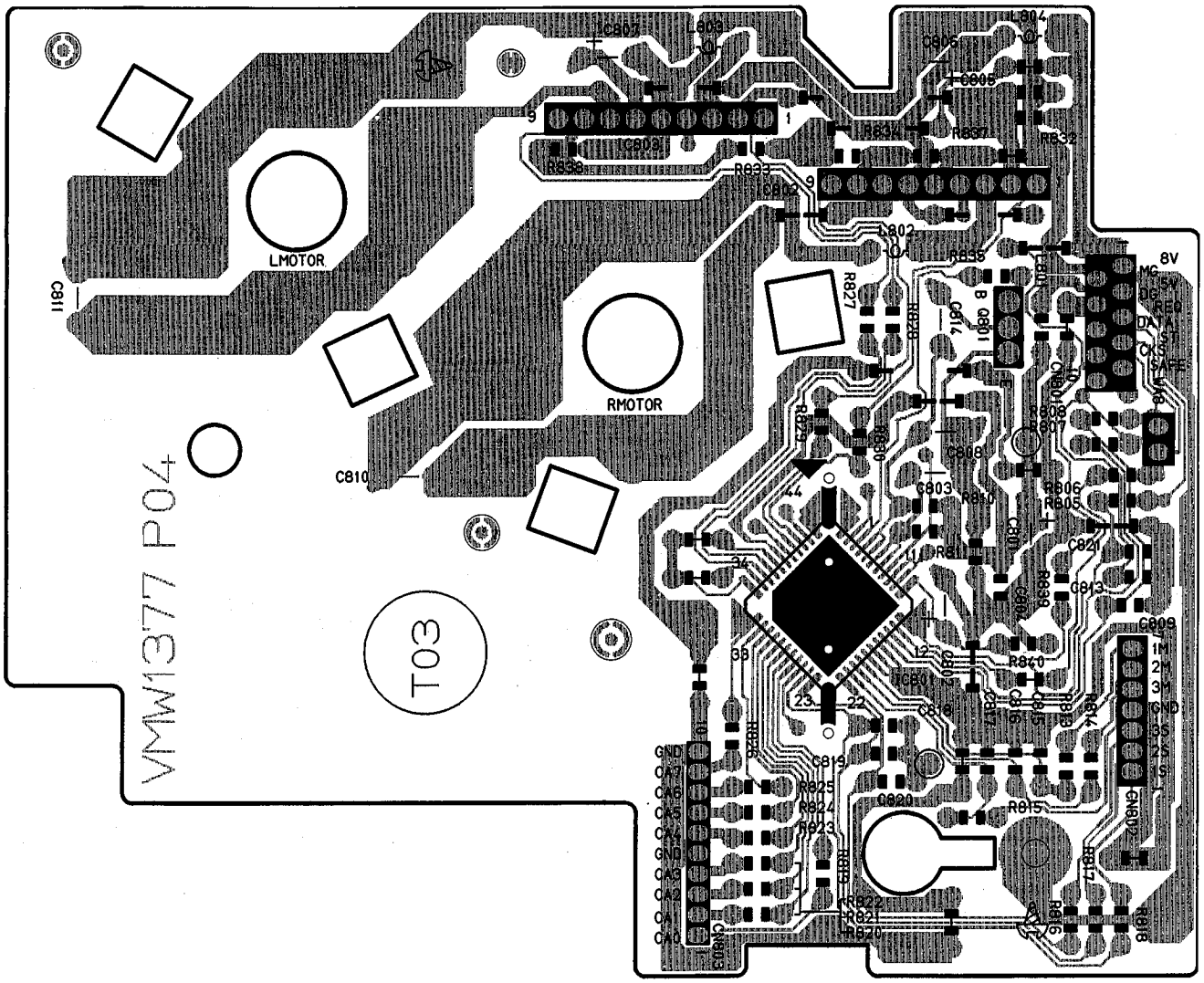
| Symbol | X | Y |
|---|---|---|
| C657 | 3 | B |
| C661 | 3 | B |
| C662 | 3 | B |
| C663 | 4 | B |
| C664 | 3 | B |
| C665 | 4 | B |
| C673 | 2 | A |
| C674 | 2 | B |
| C677 | 2 | A |
| C678 | 1 | B |
| C697 | 1 | B |
| C698 | 1 | B |
| C699 | 1 | A |
| C921 | 2 | I |
| C922 | 2 | H |
| C923 | 2 | F |
| C924 | 2 | I |
| C925 | 2 | H |
| C926 | 2 | G |
| C927 | 3 | I |
| C928 | 3 | G |
| C929 | 3 | F |
| C933 | 2 | I |
| C934 | 3 | G |
| C935 | 3 | F |
| C936 | 2 | I |
| C937 | 3 | G |
| C938 | 2 | F |
| C941 | 3 | I |
| C942 | 3 | I |
| C946 | 2 | F |
| C947 | 3 | G |
| C949 | 3 | H |
| C981 | 2 | J |
| C982 | 2 | J |
| C984 | 2 | J |
| C985 | 2 | J |
| C986 | 2 | J |
| C987 | 3 | H |
| CF401 | 7 | D |
| CN402 | 5 | E |
| CN601 | 3 | E |
| CN602 | 1 | D |
| CN604 | 1 | B |
| CN606 | 1 | B |
| CN611 | 6 | A |
| CN921 | 3 | J |
| CN922 | 3 | G |
| D441 | 5 | E |
| D442 | 5 | B |
| FW101 | 7 | J |
| FW603 | 1 | E |
| IC401 | 6 | D |
| IC402 | 6 | C |
| IC601 | 3 | D |

| Symbol | X | Y |
|---|---|---|
| IC602 | 2 | D |
| IC603 | 2 | B |
| IC921 | 3 | I |
| IC922 | 2 | G |
| J921 | 1 | J |
| J922 | 1 | I |
| J923 | 1 | H |
| J924 | 1 | G |
| J925 | 1 | F |
| L401 | 6 | D |
| L402 | 6 | D |
| L981 | 2 | I |
| L982 | 2 | J |
| L983 | 2 | J |
| P01 | 1 | D |
| P02 | 2 | E |
| P06 | 4 | A |
| P101 | 7 | F |
| Q403 | 5 | C |
| Q404 | 5 | D |
| Q411 | 6 | E |
| Q601 | 4 | E |
| R001 | 8 | J |
| R002 | 8 | J |
| R401 | 7 | D |
| R402 | 6 | D |
| R403 | 7 | C |
| R405 | 7 | C |
| R406 | 5 | B |
| R407 | 5 | B |
| R408 | 6 | D |
| R409 | 6 | E |
| R410 | 6 | E |
| R411 | 6 | E |
| R412 | 7 | D |
| R413 | 6 | E |
| R414 | 7 | E |
| R415 | 5 | E |
| R421 | 5 | B |
| R422 | 5 | C |
| R423 | 5 | D |
| R424 | 5 | D |
| R431 | 6 | C |
| R432 | 6 | C |
| R433 | 6 | C |
| R434 | 6 | C |
| R435 | 6 | C |
| R436 | 6 | B |
| R438 | 6 | C |
| R439 | 6 | C |
| R443 | 5 | C |
| R451 | 5 | E |
| R452 | 5 | E |
| R453 | 5 | B |
| R601 | 4 | C |

| Symbol | X | Y |
|---|---|---|
| R602 | 4 | C |
| R603 | 3 | B |
| R604 | 1 | B |
| R605 | 4 | E |
| R606 | 3 | E |
| R607 | 3 | E |
| R609 | 3 | E |
| R610 | 3 | E |
| R612 | 3 | D |
| R613 | 4 | D |
| R614 | 4 | D |
| R615 | 4 | E |
| R616 | 4 | E |
| R617 | 3 | C |
| R618 | 3 | D |
| R641 | 2 | C |
| R642 | 2 | C |
| R643 | 2 | C |
| R644 | 2 | C |
| R645 | 2 | D |
| R646 | 2 | D |
| R647 | 2 | C |
| R648 | 2 | D |
| R651 | 1 | C |
| R652 | 1 | C |
| R653 | 1 | C |
| R654 | 1 | C |
| R655 | 1 | C |
| R661 | 3 | B |
| R662 | 4 | B |
| R663 | 3 | B |
| R664 | 4 | B |
| R666 | 1 | B |
| R671 | 1 | A |
| R672 | 1 | A |
| R673 | 1 | A |
| R674 | 1 | B |
| R692 | 1 | B |
| R693 | 1 | B |
| R694 | 1 | A |
| R695 | 1 | C |
| R921 | 2 | I |
| R922 | 2 | H |
| R923 | 1 | G |
| R924 | 2 | I |
| R925 | 2 | H |
| R926 | 2 | G |
| R927 | 2 | I |
| R928 | 2 | H |
| R929 | 2 | F |
| R930 | 2 | I |
| R931 | 2 | G |
| R932 | 3 | F |
| R933 | 3 | I |
| R934 | 3 | G |

| Symbol | X | Y |
|---|---|---|
| R935 | 3 | F |
| R936 | 2 | I |
| R937 | 3 | G |
| R938 | 3 | F |
| R945 | 3 | H |
| R946 | 3 | H |
| R947 | 3 | G |
| R948 | 3 | G |
| R986 | 2 | I |
| R987 | 3 | J |
| S151 | 8 | H |
| TU401 | 7 | B |
| TW601 | 4 | E |
| X651 | 3 | A |

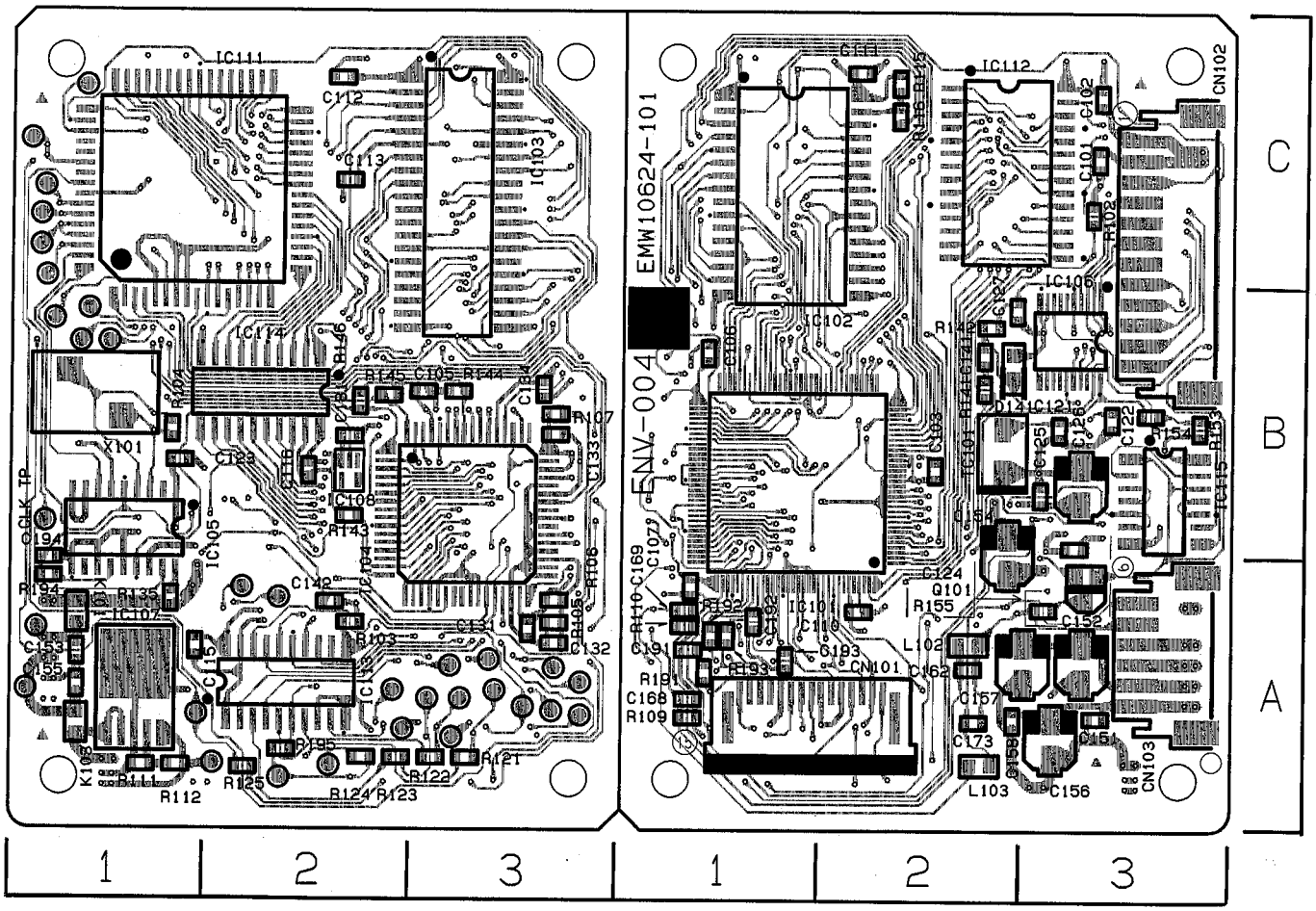
## ■ C3 Mecha. Drive P.C. Board



## ■ Video CD Unit P.C. Board (ENV-004)

Bottom Side

Top Side




Location List (ENV-004) Bottom Side

| Symbol | X | Y |
|---|---|---|
| C105 | 2 | B |
| C112 | 2 | C |
| C113 | 2 | C |
| C116 | 2 | B |
| C123 | 1 | B |
| C131 | 3 | A |
| C132 | 3 | A |
| C133 | 3 | B |
| C142 | 2 | A |
| C153 | 1 | A |
| C155 | 1 | A |
| C181 | 2 | B |
| C194 | 1 | A |
| IC103 | 3 | C |
| IC104 | 3 | B |
| IC105 | 1 | A |
| IC108 | 2 | B |
| IC111 | 1 | C |
| IC114 | 2 | B |
| K101 | 1 | A |
| K103 | 1 | A |
| R103 | 2 | A |
| R104 | 1 | B |
| R105 | 3 | A |
| R106 | 3 | A |
| R107 | 3 | B |
| R111 | 1 | A |
| R112 | 1 | A |
| R121 | 3 | A |
| R122 | 2 | A |

| Symbol | X | Y |
|---|---|---|
| R123 | 2 | A |
| R124 | 2 | A |
| R125 | 2 | A |
| R135 | 1 | A |
| R143 | 2 | B |
| R144 | 3 | B |
| R145 | 2 | B |
| R146 | 2 | B |
| R194 | 1 | A |
| R195 | 2 | A |
| X101 | 1 | B |

Location List (ENV-004) Top Side

| Symbol | X | Y |
|---|---|---|
| C101 | 3 | C |
| C102 | 3 | C |
| C103 | 2 | B |
| C106 | 1 | B |
| C107 | 1 | A |
| C110 | 2 | A |
| C111 | 2 | C |
| C115 | 3 | A |
| C121 | 3 | B |
| C122 | 3 | B |
| C124 | 3 | A |
| C125 | 3 | B |
| C126 | 3 | B |
| C127 | 3 | B |
| C134 | 1 | B |
| C141 | 2 | B |
| C151 | 3 | A |
| C152 | 3 | A |
| C154 | 2 | A |
| C156 | 3 | A |
| C157 | 3 | A |
| C158 | 3 | A |
| C162 | 2 | A |
| C168 | 1 | A |
| C169 | 1 | A |
| C173 | 2 | A |
| C191 | 1 | A |
| C192 | 1 | A |
| C193 | 1 | A |
| CN101 | 1 | A |

| Symbol | X | Y |
|---|---|---|
| CN102 | 3 | B |
| CN103 | 3 | A |
| D141 | 3 | B |
| IC101 | 2 | B |
| IC102 | 1 | C |
| IC106 | 3 | B |
| IC107 | 3 | A |
| IC112 | 2 | C |
| IC113 | 2 | A |
| IC115 | 3 | B |
| L102 | 2 | A |
| L103 | 2 | A |
| Q101 | 3 | A |
| R102 | 3 | C |
| R109 | 1 | A |
| R110 | 1 | A |
| R115 | 2 | C |
| R116 | 2 | C |
| R141 | 2 | B |
| R142 | 2 | B |
| R153 | 3 | B |
| R154 | 3 | B |
| R155 | 3 | A |
| R191 | 1 | A |
| R192 | 1 | A |
| R193 | 1 | A |
| TC101 | 2 | B |

# PARTS LIST

* All printed circuit boards and its assemblies are not available as service parts.

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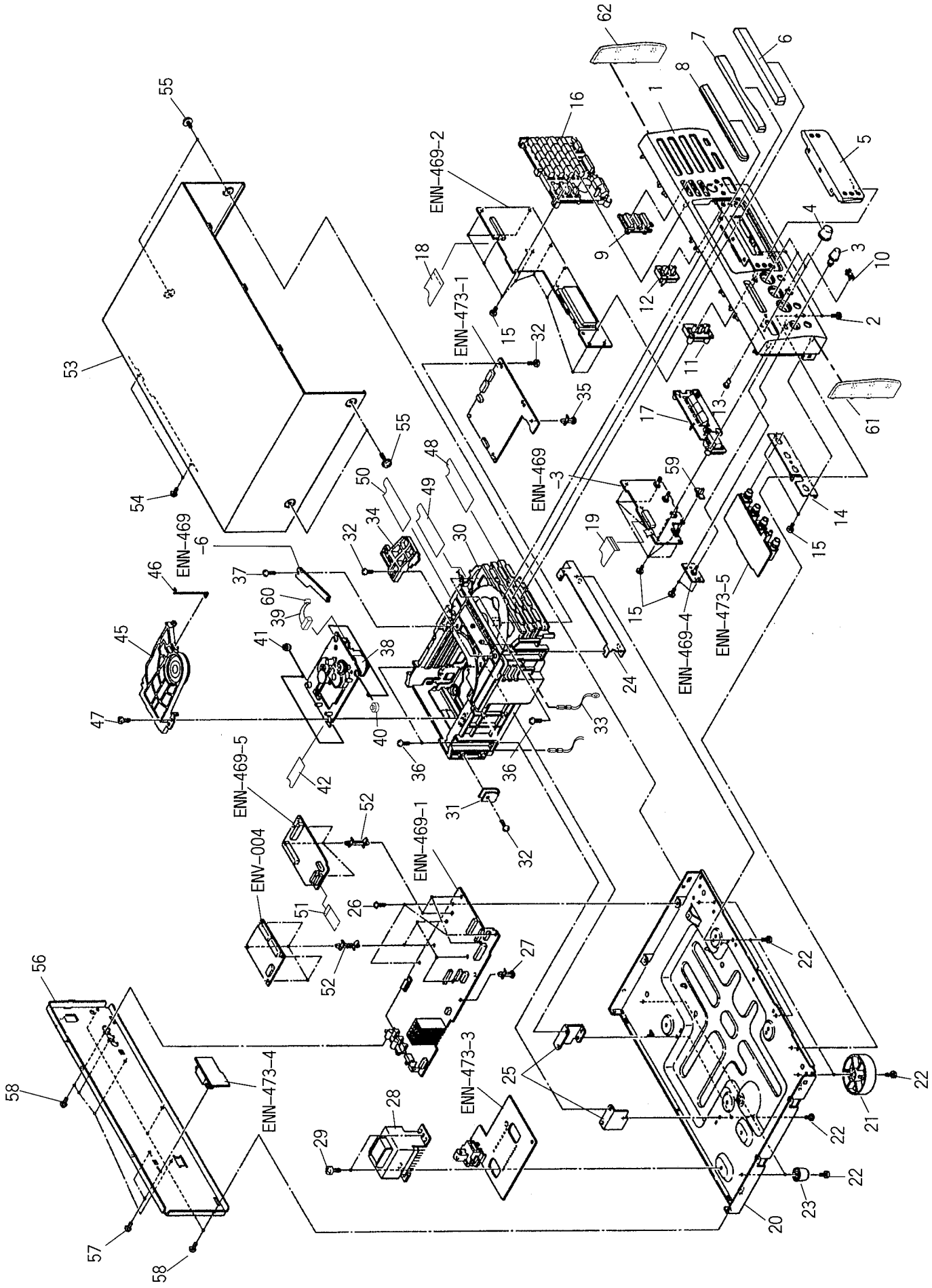
# General Exploded View and Parts List

Block No. M 1 M M



■Parts List

Block No. M1MM

| ⚠ | Item | Parts Number | Parts Name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | 1 | LE10121-001A | FRONT PANEL | 1 | | |
| | 2 | SBSG3008M | TAPPING SCREW | 3 | F.P-CH | |
| | 3 | E409229-006SMKP | BALANCE KNOB | 1 | D.ECHO | |
| | 4 | E309765-006SMKP | VOLUME KNOB | 3 | MIC | |
| | 5 | E208785-005SC | WINDOW SCREEN | 1 | | |
| | 6 | E208787-007SC | CD FITTING | 1 | DISC 1 | |
| | 7 | E208789-007SC | CD FITTING | 1 | DISC 2 | |
| | 8 | E208791-007SC | CD FITTING | 1 | DISC 3 | |
| | 9 | E309760-002SMKP | PUSH BUTTON | 1 | DISC | |
| | 10 | VJD5429-001 | JVC MARK | 1 | SINGAPORE | |
| | 11 | E309763-002SC | PUSH BUTTON | 1 | BOOKMARK | |
| | 12 | E309764-002SC | PUSH BUTTON | 1 | V.INTRO | |
| | 13 | FSJD4001-002 | INDICATOR LENS | 1 | SINGAPORE | |
| | 14 | E309766-002SMKP | MICROPHONE BRACKET | 1 | | |
| | 15 | SDSF2608Z | SCREW | 19 | | |
| | 16 | E103137-007SC | PUSH BUTTON | 1 | 20KEY | |
| | 17 | E208783-006SC | PUSH BUTTON | 1 | POWER | |
| | 18 | VWF1232-16PPB | FFC CABLE | 1 | | |
| | 19 | VWF1221-45TTB | FFC CABLE | 1 | MIC-MAIN | |
| | 20 | E103006-004SMKP | CHASSIS BASE | 1 | | |
| | 21 | VJF4039-00MSMKP | FOOT ASSY | 2 | 00E(MALAYSIA) | |
| | 22 | SBST3008Z | TAPPING SCREW | 8 | | |
| | 23 | E47227-036 | FOOT | 2 | REAR | |
| | 24 | E309769-002SMKP | MECHA BRACKET | 1 | FRONT | |
| | 25 | E309770-001SMKP | MECHA BRACKET | 2 | REAR | |
| | 26 | GBSG3008CC | TAPPING SCREW | 3 | MAIN C.B | |
| | 27 | E406084-006 | FASTENER | 1 | | |
| | 28 | ETP1010-62LAJ | POWER TRANSFORMER | 1 | | |
| | 29 | E65389-004 | SPECIAL SCREW | 2 | FOR TRANS | |
| | 30 | ---------- | C3 MECHA | 1 | | |
| | 31 | E409198-001 | WIRE CLAMP | 1 | | |
| | 32 | SBSF3008Z | TAPPING SCREW | 3 | | |
| | 33 | EWPZ01-013 | FASTEN WIRE | 1 | | |
| | 34 | E309662-001SMKP | DISK STOPPER | 1 | | |
| | 35 | E406084-005 | FASTENER | 1 | | |
| | 36 | SBST3008Z | TAPPING SCREW | 4 | C3 MECHA. | |
| | 37 | SDSF3006Z | SCREW | 1 | | |
| | 38 | ---------- | JSC CD MECHA KI | 1 | JAPAN | |
| | 39 | VDM1001-S001A | SOCKET WIRE ASSY | 1 | PU-SERVO | |
| | 40 | FMYH4003-002 | INSULATOR | 2 | BROWN | |
| | 41 | FMYH4003-001 | INSULATOR | 2 | ORANGE | |
| | 42 | QUQ110-1509AJ | FLAT WIRE | 1 | PU-SERVO | |
| | 45 | VKS3703-00FMMKP | CLAMPER ASSY | 1 | | |
| | 46 | VKW5187-001 | ROD | 1 | | |
| | 47 | SPST2606Z | TAPPING SCREW | 1 | CLAMP ASSY | |
| | 48 | VWF1210-08TTB | FLAT WIRE | 1 | C3 MECHA CB-MAIN | |
| | 49 | VWF1211-10TTB | FLAT WIRE | 1 | SERVO-MAIN | |
| | 50 | VWF1212-23TTBV | FFC CABLE | 1 | SERVO-M-COM | |
| | 51 | VWF1015-08TTA | FLAT WIRE | 1 | VCD-MAIN | |
| | 52 | E300167-002 | FASTENER | 7 | | |
| | 53 | E206967-345SC | METAL COVER | 1 | | |
| | 54 | SBSG3008M | TAPPING SCREW | 2 | M.COVER | |

■Parts List

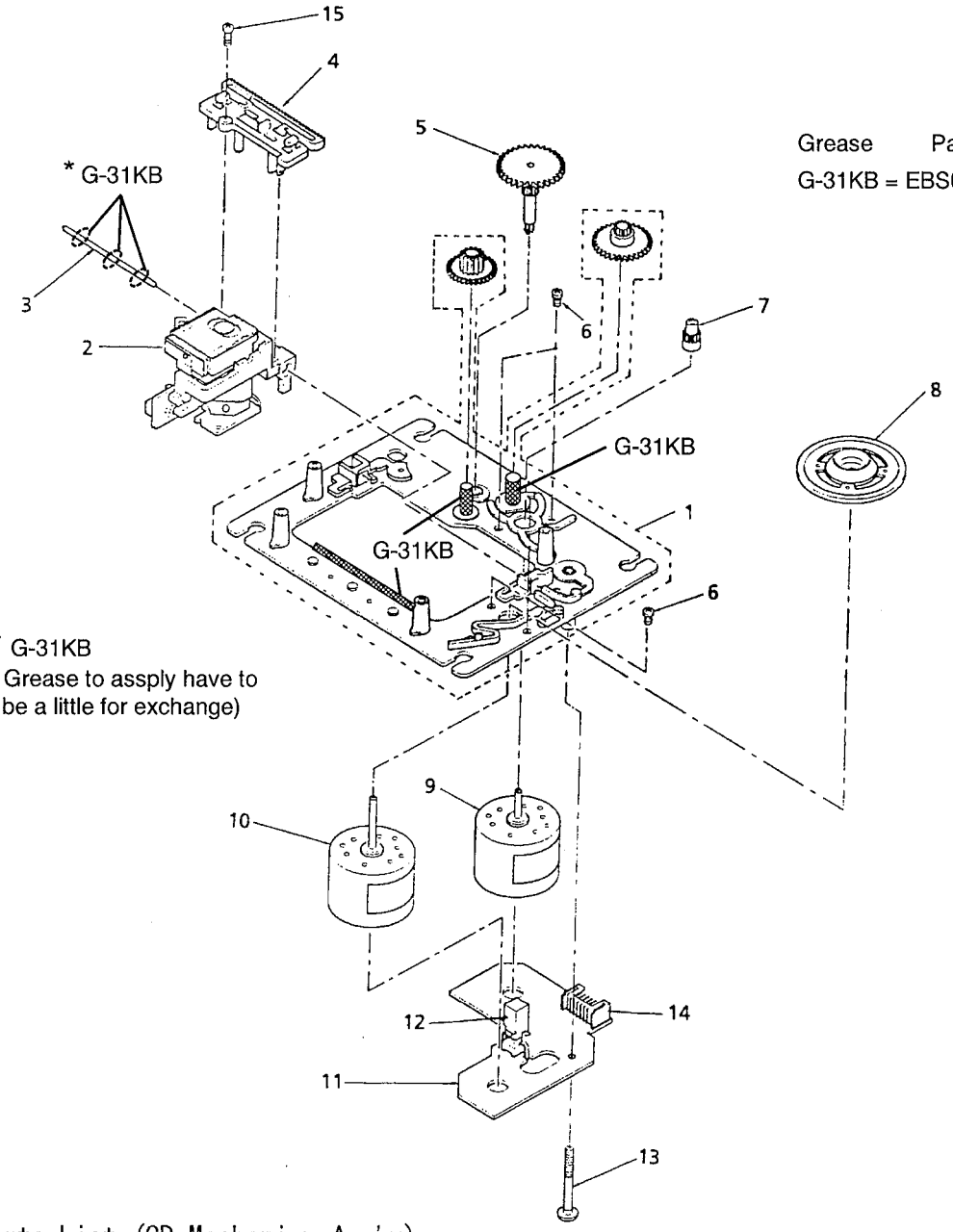
Block No. M1MM

| ⚠ | Item | Parts Number | Parts Name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | 55 | E406308-003 | SPECIAL SCREW | 4 | M.COVER | |
| | 56 | E208795-339SC | REAR PANEL | 1 | | |
| | 57 | SBSF2608M | TAPPING SCREW | 2 | V.SELECTER | |
| | 58 | E73273-003 | SPECIAL SCREW | 7 | | |
| | 59 | E75563-006SMKP | SLIDE KNOB | 1 | | |
| | 60 | VYSA1R2-033 | SPACER | 1 | WIRE CLAMP | |
| | 61 | LE20262-001A | SIDE FITTING | 1 | | |
| | 62 | LE20263-001A | SIDE FITTING | 1 | | |
| | - | E406507-001 | CAUTION LABEL | 1 | | |

# CD Mechanism Ass'y and Parts List

Block No. M 2 M M

## ■ Grease Point




Grease Parts No.
G-31KB = EBS0006-013B

* G-31KB
( Grease to assply have to be a little for exchange)

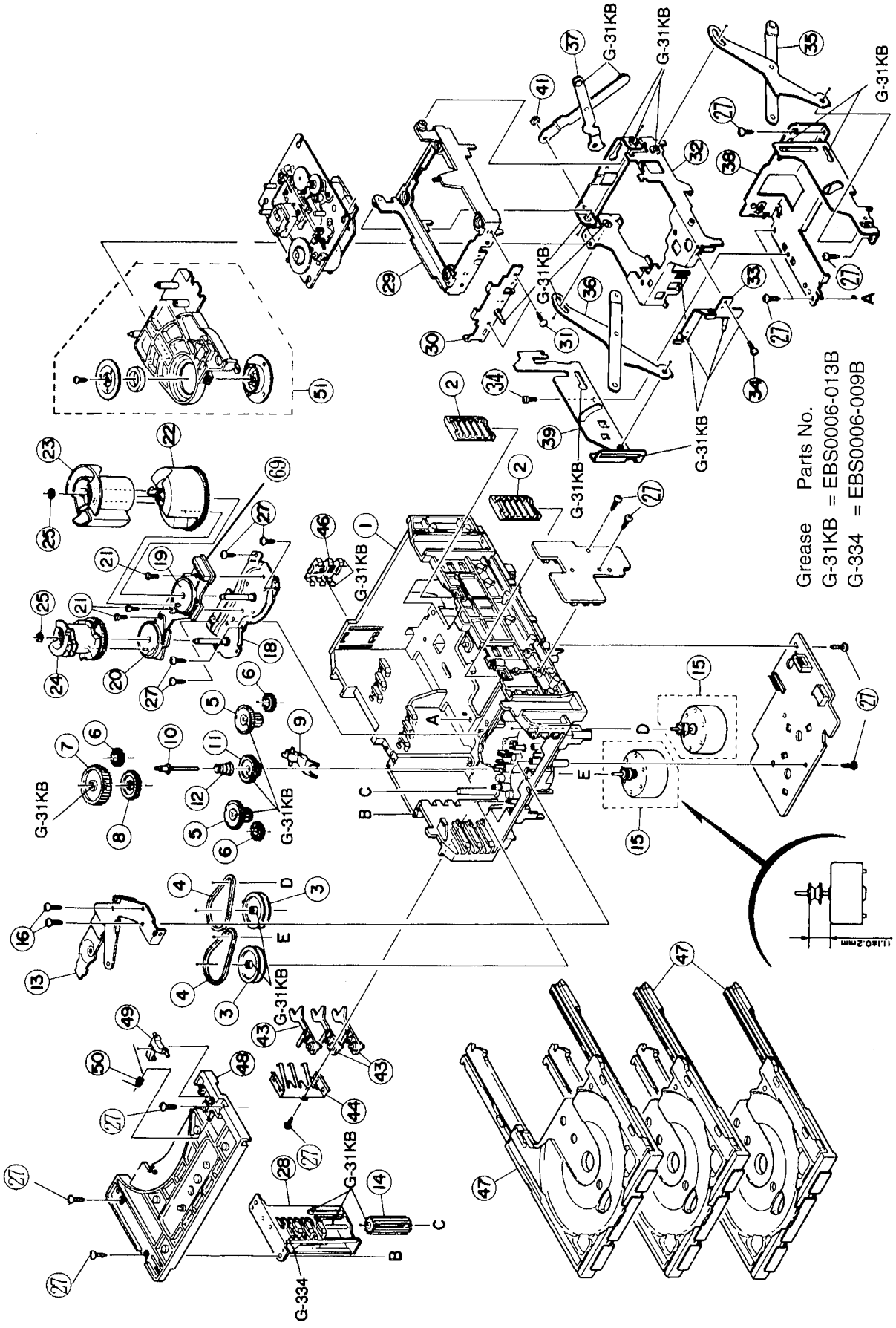
## ■ Parts List (CD Mechanism Ass'y)

| ⚠ | Item | Parts Number | Parts Name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | 1 | EPB-002A | MECHA. BASE ASSY | 1 | | |
| | 2 | OPTIMA-6S | OPTICAL PICK UP | 1 | | |
| | 3 | E407782-001 | SHAFT | 1 | | |
| | 4 | E307746-001 | CD RACK | 1 | | |
| | 5 | EPB-003A | GEAR(3) | 1 | | |
| | 6 | SDSP2003N | SCREW | 4 | | |
| | 7 | E406750-001 | PINION GEAR | 1 | | |
| | 8 | E75807-302 | TURN TABLE | 1 | | |
| | 9 | E406784-001 | FEED MOTOR | 1 | | |
| | 10 | E406783-001 | SPINDLE MOTOR | 1 | | |
| | 11 | EMW10190-001(S) | CIRCUIT BOARD | 1 | | |
| | 12 | ESB1100-005 | LEAF SWITCH | 1 | | |
| | 13 | E75832-001 | SCREW | 1 | | |
| | 14 | EMV5109-006B | PLUG ASSY | 1 | 6PIN | |
| | 15 | SDSF2006Z | SCREW | 1 | | |

# CD Changer Mechanism Ass'y and Parts List

■ Grease Point

Block No. M 3 M M



■ Parts List ( Changer Mechanism Ass'y ) Block No. M3MM

| ⚠ | Item | Parts Number | Parts Name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | 1 | VKS1144-003 | CHASSIS BASE | 1 | | |
| | 2 | VKS3698-003 | TRAY GUIDE | 2 | | |
| | 3 | VKS5532-003 | PULLEY GEAR | 2 | | |
| | 4 | VKB3000-164 | DRIVE BELT | 2 | | |
| | 5 | VKS5505-003 | GEAR B | 2 | | |
| | 6 | VKS5506-002 | GEAR C | 3 | | |
| | 7 | VKS5507-002 | CROSS GEAR U | 1 | | |
| | 8 | VKS5508-002 | CROSS GEAR L | 1 | | |
| | 9 | VKS5510-003 | SELECT LEVER | 1 | | |
| | 10 | VKH5769-001 | GEAR STUD | 1 | | |
| | 11 | VKS5511-002 | SELECT GEAR | 1 | | |
| | 12 | VKW5155-003 | COMPRESS SPRING | 1 | | |
| | 13 | VKM3846-002 | GEAR BRACKET | 1 | | |
| | 14 | VKS5509-002MM | CYLINDER GEAR | 1 | | |
| | 15 | MSN5D257A-SA2 | DC MOTOR | 2 | | |
| | 16 | DPSP2616Z | SCREW | 2 | | |
| | 18 | VKM3825-00AMM | CAM GEAR ASSY | 1 | | |
| | 19 | VKZ3172-00ASS | CAM SW. R ASS'Y | 1 | | |
| | 20 | VKZ3173-00ASS | CAM SW. L ASS'Y | 1 | | |
| | 21 | SPST2606Z | TAPPING SCREW | 3 | | |
| | 22 | VKS2263-002MM | CAM R1 | 1 | | |
| | 23 | VKS2264-002MM | CAM R2 | 1 | | |
| | 24 | VKS2265-002MM | CAM GEAR L | 1 | | |
| | 25 | WDL316050MM | SLIT WASHER | 2 | | |
| | 27 | SBSF2608Z | TAPPING SCREW | 16 | | |
| | 28 | VKS3702-00FMM | DRIVE UNIT | 1 | | |
| | 29 | VKS2247-004 | MECHA HOLDER A | 1 | | |
| | 30 | VKL7767-00B | MECHABRACKET | 1 | | |
| | 31 | SBSF2606Z | TAPPING SCREW | 2 | | |
| | 32 | VKM3860-00A | MECHA HOLDER ASSY | 1 | | |
| | 33 | VKL7802-00C | MECHA HOLDER ASSY | 1 | | |
| | 34 | SDST2604Z | SCREW | 3 | | |
| | 35 | VKL7810-00A | LIFTER | 1 | | |
| | 36 | VKL7811-00A | LIFTER | 1 | | |
| | 37 | VKL7812-00A | LIFTER | 1 | | |
| | 38 | VKL2732-002 | LIFTER BASE | 1 | | |
| | 39 | VKM3823-001 | LIFTER BRACKET | 1 | | |
| | 41 | WDL266035-2 | SLIT WASHER | 1 | | |
| | 43 | VKS5514-002MM | LOCK LEVER | 3 | | |
| | 44 | VKY3133-002MM | RETURN SPRING | 1 | | |
| | 46 | VKY3134-003MM | CLICK SPRING | 1 | | |
| | 47 | VKS2252-00E | TRAY ASS'Y | 3 | | |
| | 48 | VKS2250-003 | TOP BRACKET | 1 | | |
| | 49 | VKS5515-002 | S.TRAY STOPPER | 1 | | |
| | 50 | VKW5156-004 | TORSION SPRING | 1 | | |
| | 51 | VKS3703-00FMMKP | CLAMPER ASS'Y | 1 | | |
| | 69 | VMC0325-010 | CONNECTOR | 1 | | |

■Electrical Parts List (ENN-469)

| ⚠ | Item | Parts Number | Description | Area |
|---|---|---|---|---|
| | | I.C.S | | |
| | IC111 | PQ05RF2 | I.C(HYBRID) | |
| | IC112 | NJM78M05FA | I.C(MONO-ANALOG) | |
| | IC201 | HD6433726SD43F | I.C(DIGI-MOS) | |
| | IC202 | MN1281(P,Q) | I.C(DIGI-MOS) | |
| | IC301 | TC9409BF-000 | I.C(DIGI-MOS) | |
| | IC501 | MN35503 | I.C(DIGI-MOS) | |
| | IC502 | NJM5532DD | I.C(MONO-ANALOG) | |
| | IC503 | NJM5532DD | I.C(MONO-ANALOG) | |
| | IC701 | VC4580D | I.C(MONO-ANALOG) | |
| | IC901 | GP1U571X | INFRARED DETECT | |
| | IC961 | VC4580D | I.C(MONO-ANALOG) | |
| | | DIODES | | |
| ⚠ | D101 | ERA15-02L19 | SI.DIODE | |
| ⚠ | D102 | ERA15-02L19 | SI.DIODE | |
| ⚠ | D103 | ERA15-02L19 | SI.DIODE | |
| | D104 | MTZ27JC | ZENER DIODE | |
| | D111 | S3V20F | SI.DIODE | |
| | D112 | S3V20F | SI.DIODE | |
| | D116 | 1SR139-200 | SI.DIODE | |
| | D117 | 1SR139-200 | SI.DIODE | |
| | D121 | 1SS133 | SI.DIODE | |
| | D122 | 1SS133 | SI.DIODE | |
| | D123 | MTZ8.2JC | ZENER DIODE | |
| | D131 | 1SR139-200 | SI.DIODE | |
| | D132 | 1SR139-200 | SI.DIODE | |
| | D133 | 1SR139-200 | SI.DIODE | |
| | D134 | 1SR139-200 | SI.DIODE | |
| | D201 | 1SS133 | SI.DIODE | |
| | D211 | 1SS133 | SI.DIODE | |
| | D212 | 1SS133 | SI.DIODE | |
| | D571 | MTZ6.8JC | ZENER DIODE | |
| | D901 | 1SS133 | SI.DIODE | |
| | D902 | 1SS133 | SI.DIODE | |
| | D903 | 1SS133 | SI.DIODE | |
| | D904 | 1SS133 | SI.DIODE | |
| | D905 | 1SS133 | SI.DIODE | |
| | D906 | 1SS133 | SI.DIODE | |
| | D907 | 1SS133 | SI.DIODE | |
| | D908 | 1SS133 | SI.DIODE | |
| | D911 | SLR-342MCA47 | L.E.D. | |
| | D912 | SLR-342MCA47 | L.E.D. | |
| | D914 | SLR-342MCA47 | L.E.D. | |
| | D915 | SLR-342MCA47 | L.E.D. | |
| | D917 | SLR-342MCA47 | L.E.D. | |
| | D918 | SLR-342MCA47 | L.E.D. | |
| | D951 | SLR-342VC3F | L.E.D. | |
| | | TRANSISTORS | | |
| | Q101 | DTA114YS | DIGITAL TRANSISTOR | |
| | Q102 | 2SD2144S(VW) | SI.TRANSISTOR | |
| | Q103 | 2SD2144S(VW) | SI.TRANSISTOR | |
| | Q106 | 2SA934(Q,R) | SI.TRANSISTOR | |
| | Q111 | 2SA933(R,S) | SI.TRANSISTOR | |
| | Q112 | 2SC1740S(R,S) | SI.TRANSISTOR | |
| | Q113 | DTC114WS | DIGITAL TRANSISTOR | |
| | Q114 | DTC144ES | DIGITAL TRANSISTOR | |
| | Q115 | 2SD2061(F,G) | SI.TRANSISTOR | |
| | Q121 | 2SA933(R,S) | SI.TRANSISTOR | |
| | Q122 | DTC114YS | DIGITAL TRANSISTOR | |
| | Q301 | 2SC1740S(R,S) | SI.TRANSISTOR | |
| | Q551 | 2SD1302(S,T) | SI.TRANSISTOR | |
| | Q552 | 2SD1302(S,T) | SI.TRANSISTOR | |
| | Q911 | DTC114YS | DIGITAL TRANSISTOR | |
| | Q912 | DTC114YS | DIGITAL TRANSISTOR | |
| | Q913 | DTC114YS | DIGITAL TRANSISTOR | |
| | Q951 | DTC114YS | DIGITAL TRANSISTOR | |

| ⚠ | Item | Parts Number | Description | Area |
|---|---|---|---|---|
| | | CAPACITORS | | |
| | C101 | QETB1EM-107E | 100MF 25V AL E.CAP. | |
| | C102 | QETB1HM-107E | 100MF 50V E.CAP. | |
| | C103 | QETB1HM-475E | 4.7MF 50V E.CAP. | |
| | C111 | QFV81HJ-473 | 0.047MF 50V THIN FILM CAP. | |
| | C112 | QFV81HJ-473 | 0.047MF 50V THIN FILM CAP. | |
| | C113 | QETB1EM-478E | 4700MF 25V E.CAP. | |
| | C114 | QETB1EM-476E | 47MF 25V AL E.CAP. | |
| | C115 | QFV81HJ-334 | 0.33MF 50V THIN FILM CAP. | |
| | C116 | QETB1CM-226E | 22MF 16V E.CAP. | |
| | C117 | QETB1EM-476E | 47MF 25V AL E.CAP. | |
| | C118 | QFV81HJ-334 | 0.33MF 50V THIN FILM CAP. | |
| | C119 | QFN81HJ-104 | 0.1MF 50V MYLAR CAP. | |
| | C120 | QETB1AM-476E | 47MF 10V E.CAP. | |
| | C121 | QETB1EM-226E | 22MF 25V E.CAP. | |
| | C122 | QETB1EM-227E | 220MF 25V AL E.CAP. | |
| | C126 | QETB1AM-477E | 470MF 10V E.CAP. | |
| | C133 | QETB1EM-108E | 1000MF 25V AL E.CAP. | |
| | C134 | QETB1EM-108E | 1000MF 25V AL E.CAP. | |
| | C135 | QFV82AJ-104 | 0.1MF 100V THIN FILM CAP. | |
| | C143 | QETB1EM-476 | 47MF 25V AL E.CAP. | |
| | C151 | QCZ0205-155 | 1.5MF 25V C.CAP. | |
| | C153 | QCF31HP-473 | 0.047MF 50V CER.CAP. | |
| | C201 | QER51AM-107 | 100MF 10V AL E.CAP. | |
| | C202 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C203 | QCZ0205-155 | 1.5MF 25V C.CAP. | |
| | C204 | QER51AM-107 | 100MF 10V AL E.CAP. | |
| | C205 | QCZ0205-155 | 1.5MF 25V C.CAP. | |
| | C206 | QETB1AM-107E | 100MF 10V E.CAP. | |
| | C222 | QFN31HJ-103Z | 0.01MF 50V MYLAR CAP. | |
| | C223 | QFN31HJ-103Z | 0.01MF 50V MYLAR CAP. | |
| | C224 | QFN31HJ-473ZN | 0.047MF 50V MYLAR CAP. | |
| | C302 | QETB0JM-227E | 220MF 6.3V E.CAP. | |
| | C303 | QETB1AM-107E | 100MF 10V E.CAP. | |
| | C304 | QFN31HJ-103Z | 0.01MF 50V MYLAR CAP. | |
| | C306 | QFN31HJ-104Z | 0.1MF 50V MYLAR CAP. | |
| | C307 | QFN31HJ-103Z | 0.01MF 50V MYLAR CAP. | |
| | C308 | QCGB1HK-102 | 1000PF 50V CER.CAP. | |
| | C309 | QFN31HJ-103Z | 0.01MF 50V MYLAR CAP. | |
| | C310 | QETB1AM-107E | 100MF 10V E.CAP. | |
| | C311 | QFN31HJ-103Z | 0.01MF 50V MYLAR CAP. | |
| | C316 | QCZ0205-155 | 1.5MF 25V C.CAP. | |
| | C317 | QETB0JM-227E | 220MF 6.3V E.CAP. | |
| | C318 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C319 | QFN31HJ-103Z | 0.01MF 50V MYLAR CAP. | |
| | C321 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C323 | QCZ0205-155 | 1.5MF 25V C.CAP. | |
| | C324 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C501 | QCZ0205-155 | 1.5MF 25V C.CAP. | |
| | C502 | QETB0JM-227E | 220MF 6.3V E.CAP. | |
| | C505 | QFN31HJ-104Z | 0.1MF 50V MYLAR CAP. | |
| | C506 | EETB0JM-477E | 470MF 6.3V E.CAP. | |
| | C507 | QFN31HJ-104Z | 0.1MF 50V MYLAR CAP. | |
| | C508 | QCT30CH-180Y | 18PF 50V CER.CAP. | |
| | C509 | QCT30CH-180Y | 18PF 50V CER.CAP. | |
| | C510 | QETB1AM-476E | 47MF 10V E.CAP. | |
| | C511 | QFN31HJ-104Z | 0.1MF 50V MYLAR CAP. | |
| | C512 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C513 | QCF21HP-223A | 0.022MF 50V CER.CAP. | |
| | C521 | QFN31HJ-392Z | 3900PF 50V MYLAR CAP. | |
| | C522 | QFN31HJ-392Z | 3900PF 50V MYLAR CAP. | |
| | C523 | QFN31HJ-333Z | 0.033MF 50V MYLAR CAP. | |
| | C524 | QFN31HJ-333Z | 0.033MF 50V MYLAR CAP. | |
| | C525 | QCBB1HK-181Y | 180PF 50V CER.CAP. | |
| | C526 | QCBB1HK-181Y | 180PF 50V CER.CAP. | |
| | C527 | EETB1EM-107E | 100MF 25V E.CAP. | |

■Electrical Parts List (ENN-469)

| ⚠ | Item | Parts Number | Description | Area |
|---|---|---|---|---|
| | C528 | EETB1EM-107E | 100MF 25V E.CAP. | |
| | C531 | QFN81HJ-821 | 820PF 50V MYLAR CAP. | |
| | C532 | QFN81HJ-821 | 820PF 50V MYLAR CAP. | |
| | C533 | EETB1EM-107E | 100MF 25V E.CAP. | |
| | C534 | EETB1EM-107E | 100MF 25V E.CAP. | |
| | C537 | EET5010-476E | 47MF E.CAP. | |
| | C538 | EET5010-476E | 47MF E.CAP. | |
| | C539 | QFN31HJ-122Z | 1200PF 50V MYLAR CAP. | |
| | C540 | QFN31HJ-122Z | 1200PF 50V MYLAR CAP. | |
| | C571 | QETB0JM-477E | 470MF 6.3V AL E.CAP. | |
| | C574 | QCS21HJ-680A | 68PF 50V CER.CAP. | |
| | C701 | EETB1HM-475E | 4.7MF 50V E.CAP. | |
| | C702 | EETB1HM-475E | 4.7MF 50V E.CAP. | |
| | C717 | QETB1CM-107 | 100MF 16V AL E.CAP. | |
| | C718 | QETB1CM-107 | 100MF 16V AL E.CAP. | |
| | C901 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C902 | QER51AM-227 | 220MF 10V AL E.CAP. | |
| | C911 | QER51HM-475 | 4.7MF 50V AL E.CAP. | |
| | C912 | QER51HM-475 | 4.7MF 50V AL E.CAP. | |
| | C961 | QER61HM-105Z | 1MF 50V AL E.CAP. | |
| | C962 | QCBB1HK-121Y | 120PF 50V CER.CAP. | |
| | C971 | QER51CM-226 | 22MF 16V AL E.CAP. | |
| | C972 | QER51CM-226 | 22MF 16V AL E.CAP. | |
| | C973 | QCBB1HK-101Y | 100PF 50V CER.CAP. | |
| | | RESISTORS | | |
| | R101 | QRD167J-562 | 5.6K 1/6W CARBON RES. | |
| | R102 | QRD167J-562 | 5.6K 1/6W CARBON RES. | |
| | R103 | QRD167J-751 | 750 1/6W CARBON RES. | |
| | R107 | QRD167J-751 | 750 1/6W CARBON RES. | |
| ⚠ | R111 | QRZ0077-560 | 56 1/4W FUSIBLE RES. | |
| | R112 | QRD161J-472 | 4.7K 1/6W CARBON RES. | |
| | R113 | QRD167J-121 | 120 1/6W CARBON RES. | |
| | R114 | QRD161J-473 | 47K 1/6W CARBON RES. | |
| | R117 | QRD161J-221 | 220 1/6W CARBON RES. | |
| | R118 | QRD161J-221 | 220 1/6W CARBON RES. | |
| | R119 | QRD161J-681 | 680 1/6W CARBON RES. | |
| | R120 | QRD161J-221 | 220 1/6W CARBON RES. | |
| | R121 | QRD161J-183 | 18K 1/6W CARBON RES. | |
| | R122 | QRD161J-273 | 27K 1/6W CARBON RES. | |
| | R123 | QRD161J-221 | 220 1/6W CARBON RES. | |
| | R124 | QRD161J-331 | 330 1/6W CARBON RES. | |
| | R125 | QRD161J-183 | 18K 1/6W CARBON RES. | |
| | R126 | QRD161J-182 | 1.8K 1/6W CARBON RES. | |
| | R127 | QRD161J-221 | 220 1/6W CARBON RES. | |
| | R128 | QRD161J-221 | 220 1/6W CARBON RES. | |
| | R201 | QRD161J-821 | 820 1/6W CARBON RES. | |
| | R202 | QRD161J-105 | 1M 1/6W CARBON RES. | |
| | R204 | QRD161J-472 | 4.7K 1/6W CARBON RES. | |
| | R217 | QRD161J-103 | 10K 1/6W CARBON RES. | |
| | R218 | QRD161J-103 | 10K 1/6W CARBON RES. | |
| | R221 | QRD161J-103 | 10K 1/6W CARBON RES. | |
| | R224 | QRD161J-103 | 10K 1/6W CARBON RES. | |
| | R225 | QRD161J-103 | 10K 1/6W CARBON RES. | |
| | R226 | QRD161J-472 | 4.7K 1/6W CARBON RES. | |
| | R231 | QRD161J-331 | 330 1/6W CARBON RES. | |
| | R232 | QRD161J-391 | 390 1/6W CARBON RES. | |
| | R233 | QRD161J-821 | 820 1/6W CARBON RES. | |
| | R234 | QRD161J-183 | 18K 1/6W CARBON RES. | |
| | R235 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R302 | QRD161J-390 | 39 1/6W CARBON RES. | |
| | R303 | QRD167J-822 | 8.2K 1/6W CARBON RES. | |
| | R304 | QRD161J-103 | 10K 1/6W CARBON RES. | |
| | R305 | QRD161J-103 | 10K 1/6W CARBON RES. | |
| | R310 | QRD161J-100 | 10 1/6W CARBON RES. | |
| | R311 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R321 | QRD161J-102 | 1K 1/6W CARBON RES. | |

| ⚠ | Item | Parts Number | Description | Area |
|---|---|---|---|---|
| | R322 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R323 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R325 | QRD167J-153 | 15K 1/6W CARBON RES. | |
| | R326 | QRD161J-512 | 5.1K 1/6W CARBON RES. | |
| | R327 | QRD167J-822 | 8.2K 1/6W CARBON RES. | |
| | R328 | QRD161J-331 | 330 1/6W CARBON RES. | |
| | R329 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R452 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R453 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R454 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R503 | QRD161J-243 | 24K 1/6W CARBON RES. | |
| | R504 | QRD161J-163 | 16K 1/6W CARBON RES. | |
| | R505 | QRD161J-163 | 16K 1/6W CARBON RES. | |
| | R506 | QRD161J-243 | 24K 1/6W CARBON RES. | |
| | R508 | QRD161J-101 | 100 1/6W CARBON RES. | |
| | R509 | QRD161J-243 | 24K 1/6W CARBON RES. | |
| | R510 | QRD161J-163 | 16K 1/6W CARBON RES. | |
| | R511 | QRD161J-243 | 24K 1/6W CARBON RES. | |
| | R512 | QRD161J-163 | 16K 1/6W CARBON RES. | |
| | R513 | QRD161J-181 | 180 1/6W CARBON RES. | |
| | R515 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R521 | QRD167J-682 | 6.8K 1/6W CARBON RES. | |
| | R522 | QRD167J-682 | 6.8K 1/6W CARBON RES. | |
| | R525 | QRD161J-362 | 3.6K 1/6W CARBON RES. | |
| | R526 | QRD161J-362 | 3.6K 1/6W CARBON RES. | |
| | R527 | QRD161J-162 | 1.6K 1/6W CARBON RES. | |
| | R528 | QRD161J-162 | 1.6K 1/6W CARBON RES. | |
| | R529 | QRD161J-183 | 18K 1/6W CARBON RES. | |
| | R530 | QRD161J-183 | 18K 1/6W CARBON RES. | |
| | R531 | QRD167J-332 | 3.3K 1/6W CARBON RES. | |
| | R532 | QRD167J-332 | 3.3K 1/6W CARBON RES. | |
| | R533 | QRD161J-472 | 4.7K 1/6W CARBON RES. | |
| | R534 | QRD161J-472 | 4.7K 1/6W CARBON RES. | |
| | R535 | QRD161J-331 | 330 1/6W CARBON RES. | |
| | R537 | QRD161J-331 | 330 1/6W CARBON RES. | |
| | R543 | QRD161J-622 | 6.2K 1/6W CARBON RES. | |
| | R544 | QRD161J-622 | 6.2K 1/6W CARBON RES. | |
| | R545 | QRD161J-273 | 27K 1/6W CARBON RES. | |
| | R546 | QRD161J-273 | 27K 1/6W CARBON RES. | |
| | R547 | QRD161J-471 | 470 1/6W CARBON RES. | |
| | R548 | QRD161J-471 | 470 1/6W CARBON RES. | |
| | R551 | QRD161J-101 | 100 1/6W CARBON RES. | |
| | R552 | QRD161J-101 | 100 1/6W CARBON RES. | |
| | R553 | QRD161J-331 | 330 1/6W CARBON RES. | |
| | R555 | QRD161J-331 | 330 1/6W CARBON RES. | |
| | R561 | QRD167J-223 | 22K 1/6W CARBON RES. | |
| | R562 | QRD167J-223 | 22K 1/6W CARBON RES. | |
| | R571 | QRD161J-104 | 100K 1/6W CARBON RES. | |
| | R701 | QRD161J-561 | 560 1/6W CARBON RES. | |
| | R702 | QRD161J-561 | 560 1/6W CARBON RES. | |
| | R703 | QRD161J-473 | 47K 1/6W CARBON RES. | |
| | R704 | QRD161J-473 | 47K 1/6W CARBON RES. | |
| | R705 | QRD161J-103 | 10K 1/6W CARBON RES. | |
| | R706 | QRD161J-103 | 10K 1/6W CARBON RES. | |
| | R709 | QRD167J-562 | 5.6K 1/6W CARBON RES. | |
| | R710 | QRD167J-562 | 5.6K 1/6W CARBON RES. | |
| | R711 | QRD167J-151 | 150 1/6W CARBON RES. | |
| | R712 | QRD167J-151 | 150 1/6W CARBON RES. | |
| | R713 | QRD161J-331 | 330 1/6W CARBON RES. | |
| | R715 | QRD161J-331 | 330 1/6W CARBON RES. | |
| | R721 | QRD161J-472 | 4.7K 1/6W CARBON RES. | |
| | R911 | QRD161J-221 | 220 1/6W CARBON RES. | |
| | R912 | QRD161J-221 | 220 1/6W CARBON RES. | |
| | R913 | QRD161J-221 | 220 1/6W CARBON RES. | |
| | R951 | QRD161J-471 | 470 1/6W CARBON RES. | |
| | R957 | QRD161J-472 | 4.7K 1/6W CARBON RES. | |

■Electrical Parts List (ENN-469)

| ⚠ | Item | Parts Number | Description | Area |
|---|---|---|---|---|
| | R961 | QRD161J-182 | 1.8K 1/6W CARBON RES. | |
| | R963 | QRD161J-123 | 12K 1/6W CARBON RES. | |
| | R964 | QRD161J-123 | 12K 1/6W CARBON RES. | |
| | R965 | QRD167J-682 | 6.8K 1/6W CARBON RES. | |
| | R967 | QRD161J-303 | 30K 1/6W CARBON RES. | |
| | R972 | QRD161J-331 | 330 1/6W CARBON RES. | |
| | R973 | QRD161J-331 | 330 1/6W CARBON RES. | |
| | RA201 | QRB059J-472 | 4.7K 1/10WNETWORK RES. | |
| | RA204 | QRB055J-103 | 10K 1/8W NETWORK RES. | |
| | VR961 | QVQ0006-B14 | 10K VARIABLE RES. | |
| | VR962 | QVQ0006-B14 | 10K VARIABLE RES. | |
| | VR963 | QVQ0006-B14 | 10K VARIABLE RES. | |
| | VR964 | QVQ0006-B14 | 10K VARIABLE RES. | |
| | | OTHERS | | |
| | | EMW10602-007 | PRINTED BOARD | |
| | | QWE350-07RR | VINYL WIRE | |
| | | QWE351-08RR | VINYL WIRE | |
| | | QWE358-16RR | VINYL WIRE | |
| | | SBSG3008CC | TAPPING SCREW | |
| | | SBST3008Z | TAPPING SCREW | |
| | J701 | EMN00YV-321A | PIN JACK | |
| | K501 | ENZ8101-007 | INDUCTOR | |
| | K502 | ENZ8101-007 | INDUCTOR | |
| | K503 | ENZ8101-007 | INDUCTOR | |
| | S701 | QSS1A13-E01 | SLIDE SWITCH | |
| | S901 | ESP0001-023M | TACT SWITCH | |
| | S902 | ESP0001-023M | TACT SWITCH | |
| | S903 | ESP0001-023M | TACT SWITCH | |
| | S904 | ESP0001-023M | TACT SWITCH | |
| | S905 | ESP0001-023M | TACT SWITCH | |
| | S906 | ESP0001-023M | TACT SWITCH | |
| | S907 | ESP0001-023M | TACT SWITCH | |
| | S908 | ESP0001-023M | TACT SWITCH | |
| | S909 | ESP0001-023M | TACT SWITCH | |
| | S910 | ESP0001-023M | TACT SWITCH | |
| | S911 | ESP0001-023M | TACT SWITCH | |
| | S916 | ESP0001-023M | TACT SWITCH | |
| | S917 | ESP0001-023M | TACT SWITCH | |
| | S918 | ESP0001-023M | TACT SWITCH | |
| | S919 | ESP0001-023M | TACT SWITCH | |
| | S920 | ESP0001-023M | TACT SWITCH | |
| | S921 | ESP0001-023M | TACT SWITCH | |
| | S922 | ESP0001-023M | TACT SWITCH | |
| | S923 | ESP0001-023M | TACT SWITCH | |
| | S924 | ESP0001-023M | TACT SWITCH | |
| | S925 | ESP0001-023M | TACT SWITCH | |
| | S926 | ESP0001-023M | TACT SWITCH | |
| | S927 | ESP0001-023M | TACT SWITCH | |
| | S928 | ESP0001-023M | TACT SWITCH | |
| | S929 | ESP0001-023M | TACT SWITCH | |
| | S930 | ESP0001-023M | TACT SWITCH | |
| | S931 | ESP0001-023M | TACT SWITCH | |
| | S932 | ESP0001-023M | TACT SWITCH | |
| | S933 | ESP0001-023M | TACT SWITCH | |
| | S934 | ESP0001-023M | TACT SWITCH | |
| | S935 | ESP0001-023M | TACT SWITCH | |
| | S936 | ESP0001-023M | TACT SWITCH | |
| | S937 | ESP0001-023M | TACT SWITCH | |
| | S938 | ESP0001-023M | TACT SWITCH | |
| | S939 | ESP0001-023M | TACT SWITCH | |
| | S940 | ESP0001-023M | TACT SWITCH | |
| | S941 | ESP0001-023M | TACT SWITCH | |
| | S942 | ESP0001-023M | TACT SWITCH | |
| | S951 | ESP0001-023M | TACT SWITCH | |
| | S956 | ESP0001-023M | TACT SWITCH | |
| | S957 | ESP0001-023M | TACT SWITCH | |

| ⚠ | Item | Parts Number | Description | Area |
|---|---|---|---|---|
| | S958 | ESP0001-023M | TACT SWITCH | |
| | S959 | QSS4005-E01 | SLIDE SWITCH | |
| | X201 | ECX0008-000KMZ | CRYSTAL | |
| | X501 | ECX0169-344EA | CRYSTAL | |
| | BK001 | E70225-001 | EARTH PLATE | |
| | CN201 | EMV7155-032 | CONNECT TERMINAL | |
| | CN202 | VMC0163-021 | CONNECT TERMINAL | |
| | CN211 | EMV7155-012 | CONNECT TERMINAL | |
| | CN212 | VMC0163-011 | CONNECT TERMINAL | |
| | CN213 | EMV7145-004Z | SOCKET ASSY | |
| | CN214 | EMV7155-010 | CONNECT TERMINAL | |
| | CN221 | EMV5142-612 | SOCKET TERMINAL | |
| | CN222 | EWS32C-A613 | SOCKET WIRE ASSY | |
| | CN223 | EMV5109-015A | PLUG ASSY | |
| | CN224 | EWS26F-A213 | SOCKET WIRE ASSY | |
| | CN501 | EMV7144-015 | F.P.C. PLUG | |
| | CN502 | EWS26C-A416 | SOCKET WIRE ASSY | |
| | CN503 | EWS266-A413 | SOCKET WIRE ASSY | |
| | CN901 | EMV7160-032 | CONNECT TERMINAL | |
| | CN951 | VMC0163-R21 | CONNECT TERMINAL | |
| ⚠ | CP111 | ICP-N25 | I.C. PROTECTOR | |
| ⚠ | CP112 | ICP-N15 | I.C. PROTECTOR | |
| ⚠ | CP113 | ICP-N20 | I.C. PROTECTOR | |
| | D1901 | ELU0001-212 | FLUORESCENT DISPLAY TUBE | |
| | EP002 | EMZ4002-001Z | EARTH PLATE | |
| | FH901 | E308192-001 | FL HOLDER | |
| | FS901 | E306805-014 | FELT SPACER | |
| | FW921 | VWSB05-16B34K | FLAT WIRE | |
| | FW922 | VWSB07-10B34K | FLAT WIRE | |
| | FW951 | VWSB03-084K4K | FLAT WIRE | |
| | HS001 | E409175-001 | HEAT SINK | |
| | HS002 | E70306-001 | HEAT SINK | |
| | JT101 | EMV7145-003Z | SOCKET ASSY | |
| | JT102 | EMV7145-004Z | SOCKET ASSY | |

■Electrical Parts List (ENN-473)

| ⚠ | Item | Parts Number | Description | Area |
|---|---|---|---|---|
| | | I.C.S | | |
| | IC601 | AN8806SB | I.C(MONO-ANALOG) | |
| | IC602 | BA6398FP | I.C(MONO-ANALOG) | |
| | IC603 | MN662720RB | I.C(DIGI-MOS) | |
| | IC921 | VC4580D | I.C(MONO-ANALOG) | |
| | IC922 | VC4580D | I.C(MONO-ANALOG) | |
| | | TRANSISTORS | | |
| | Q601 | 2SA950(O,Y) | SI.TRANSISTOR | |
| | | CAPACITORS | | |
| | C602 | QCZ0205-155 | 1.5MF 25V C.CAP. | |
| | C604 | QETB1AM-107E | 100MF 10V E.CAP. | |
| | C605 | QETB1HM-106E | 10MF 50V E.CAP. | |
| | C606 | QCGB1HK-102 | 1000PF 50V CER.CAP. | |
| | C607 | QCGB1HK-102 | 1000PF 50V CER.CAP. | |
| | C608 | QETB1HM-105E | 1MF 50V AL E.CAP. | |
| | C609 | QCBB1HK-101Y | 100PF 50V CER.CAP. | |
| | C610 | QFV81HJ-273 | 0.027MF 50V THIN FILM CAP. | |
| | C611 | QCXB1CM-472Y | 4700PF 16V CER.CAP. | |
| | C612 | QFN31HJ-103Z | 0.01MF 50V MYLAR CAP. | |
| | C613 | QFV81HJ-104 | 0.1MF 50V THIN FILM CAP. | |
| | C614 | QFV81HJ-104 | 0.1MF 50V THIN FILM CAP. | |
| | C615 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C616 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C617 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C618 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C619 | QCBB1HK-271Y | 270PF 50V CER.CAP. | |
| | C620 | QCSB1HJ-470 | 47PF 50V CER.CAP. | |
| | C621 | QCGB1HK-102 | 1000PF 50V CER.CAP. | |
| | C622 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C623 | QFV81HJ-104 | 0.1MF 50V THIN FILM CAP. | |
| | C624 | QCBB1HK-331Y | 330PF 50V CER.CAP. | |
| | C631 | QETB1AM-477E | 470MF 10V E.CAP. | |
| | C632 | QETB1AM-107E | 100MF 10V E.CAP. | |
| | C641 | QFN31HJ-103Z | 0.01MF 50V MYLAR CAP. | |
| | C642 | QFN31HJ-273Z | 0.027MF 50V MYLAR CAP. | |
| | C653 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C656 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C661 | QCBB1HK-471Y | 470PF 50V CER.CAP. | |
| | C662 | QETB1AM-107E | 100MF 10V E.CAP. | |
| | C663 | QFV81HJ-223 | 0.022MF 50V THIN FILM CAP. | |
| | C664 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C665 | QFV81HJ-104 | 0.33MF 50V THIN FILM CAP. | |
| | C673 | QER51AM-227 | 220MF 10V AL E.CAP. | |
| | C674 | QCHB1EZ-223 | 0.022MF 25V CER.CAP. | |
| | C677 | QFV81HJ-104 | 0.1MF 50V THIN FILM CAP. | |
| | C678 | QFV81HJ-104 | 0.1MF 50V THIN FILM CAP. | |
| | C923 | QCBB1HK-101Y | 100PF 50V CER.CAP. | |
| | C924 | EETB1HM-105E | 1MF 50V E.CAP. | |
| | C925 | EETB1HM-105E | 1MF 50V E.CAP. | |
| | C926 | EETB1HM-105E | 1MF 50V E.CAP. | |
| | C927 | QCBB1HK-561Y | 560PF 50V CER.CAP. | |
| | C928 | QCBB1HK-561Y | 560PF 50V CER.CAP. | |
| | C929 | QCBB1HK-561Y | 560PF 50V CER.CAP. | |
| | C933 | QCBB1HK-181Y | 180PF 50V CER.CAP. | |
| | C934 | QCBB1HK-181Y | 180PF 50V CER.CAP. | |
| | C935 | QCBB1HK-181Y | 180PF 50V CER.CAP. | |
| | C936 | EETB1HM-474E | 0.47MF 50V E.CAP. | |
| | C937 | EETB1HM-474E | 0.47MF 50V E.CAP. | |
| | C938 | EETB1HM-105E | 1MF 50V E.CAP. | |
| | C941 | QETB1CM-226E | 22MF 16V E.CAP. | |
| | C942 | QETB1CM-226E | 22MF 16V E.CAP. | |
| | C946 | QCF31HP-473Z | 0.047MF 50V CER.CAP. | |
| | C947 | QCF31HP-473Z | 0.047MF 50V CER.CAP. | |
| | C949 | QCF21HP-223A | 0.022MF 50V CER.CAP. | |
| | C981 | QCVB1CM-103Y | 0.01MF 16V CER.CAP. | |
| | C982 | QCVB1CM-103Y | 0.01MF 16V CER.CAP. | |

| ⚠ | Item | Parts Number | Description | Area |
|---|---|---|---|---|
| | C984 | QCS21HJ-271A | 270PF 50V CER.CAP. | |
| | C985 | QCF21HP-103A | 0.01MF 50V CER.CAP. | |
| | C986 | QCF21HP-103A | 0.01MF 50V CER.CAP. | |
| | C987 | QCF21HP-103A | 0.01MF 50V CER.CAP. | |
| | | RESISTORS | | |
| | R601 | QRD161J-123 | 12K 1/6W CARBON RES. | |
| | R602 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R603 | QRD167J-560 | 56 1/6W CARBON RES. | |
| | R604 | QRD161J-2R2 | 2.2 1/6W CARBON RES. | |
| | R605 | QRD161J-274 | 270K 1/6W CARBON RES. | |
| | R606 | QRD167J-154 | 150K 1/6W CARBON RES. | |
| | R607 | QRD161J-273 | 27K 1/6W CARBON RES. | |
| | R609 | QRD161J-114 | 110K 1/6W CARBON RES. | |
| | R610 | QRD161J-104 | 100K 1/6W CARBON RES. | |
| | R612 | QRD167J-822 | 8.2K 1/6W CARBON RES. | |
| | R613 | QRD167J-121 | 120 1/6W CARBON RES. | |
| | R614 | QRD161J-100 | 10 1/6W CARBON RES. | |
| | R615 | QRD161J-120 | 12 1/6W CARBON RES. | |
| | R616 | QRD161J-910Y | 91 1/6W CARBON RES. | |
| | R617 | QRD161J-125 | 1.2M 1/6W CARBON RES. | |
| | R618 | QRD161J-473 | 47K 1/6W CARBON RES. | |
| | R641 | QRD161J-124 | 120K 1/6W CARBON RES. | |
| | R642 | QRD161J-222 | 2.2K 1/6W CARBON RES. | |
| | R643 | QRD167J-822 | 8.2K 1/6W CARBON RES. | |
| | R644 | QRD167J-223 | 22K 1/6W CARBON RES. | |
| | R645 | QRD167J-223 | 22K 1/6W CARBON RES. | |
| | R646 | QRD161J-222 | 2.2K 1/6W CARBON RES. | |
| | R647 | QRD167J-562 | 5.6K 1/6W CARBON RES. | |
| | R648 | QRD161J-821 | 820 1/6W CARBON RES. | |
| | R651 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R652 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R653 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R654 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R655 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R661 | QRD161J-683 | 68K 1/6W CARBON RES. | |
| | R662 | QRD167J-155 | 1.5M 1/6W CARBON RES. | |
| | R663 | QRD161J-124 | 120K 1/6W CARBON RES. | |
| | R664 | QRD161J-471 | 470 1/6W CARBON RES. | |
| | R666 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R671 | QRD161J-101 | 100 1/6W CARBON RES. | |
| | R672 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R673 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R674 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R692 | QRD161J-101 | 100 1/6W CARBON RES. | |
| | R693 | QRD161J-101 | 100 1/6W CARBON RES. | |
| | R694 | QRD161J-101 | 100 1/6W CARBON RES. | |
| | R921 | QRD161J-473 | 47K 1/6W CARBON RES. | |
| | R922 | QRD161J-473 | 47K 1/6W CARBON RES. | |
| | R923 | QRD161J-473 | 47K 1/6W CARBON RES. | |
| | R924 | QRD161J-103 | 10K 1/6W CARBON RES. | |
| | R925 | QRD161J-103 | 10K 1/6W CARBON RES. | |
| | R926 | QRD161J-103 | 10K 1/6W CARBON RES. | |
| | R927 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R928 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R929 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R930 | QRD161J-471 | 470 1/6W CARBON RES. | |
| | R931 | QRD161J-471 | 470 1/6W CARBON RES. | |
| | R932 | QRD161J-471 | 470 1/6W CARBON RES. | |
| | R933 | QRD161J-473 | 47K 1/6W CARBON RES. | |
| | R934 | QRD161J-473 | 47K 1/6W CARBON RES. | |
| | R935 | QRD161J-473 | 47K 1/6W CARBON RES. | |
| | R936 | QRD161J-471 | 470 1/6W CARBON RES. | |
| | R937 | QRD161J-471 | 470 1/6W CARBON RES. | |
| | R938 | QRD161J-181 | 180 1/6W CARBON RES. | |
| | R946 | QRD161J-331 | 330 1/6W CARBON RES. | |
| | R947 | QRD161J-331 | 330 1/6W CARBON RES. | |

■Electrical Parts List (ENN-473)

| ⚠ | Item | Parts Number | Description | Area |
|---|---|---|---|---|
| | R986 | QRD161J-101 | 100 1/6W CARBON RES. | |
| | R987 | QRD161J-101 | 100 1/6W CARBON RES. | |
| | | OTHERS | | |
| | | EMW10623-007 | PRINTED BOARD | |
| | | E406523-001 | EARTH BRACKET | |
| | BLU | QWE886-07RR | VINYL WIRE | |
| | J921 | QMS6A70-E21H | HEADPHONE JACK | |
| | J922 | QMS3L38-E20S | PIN JACK | |
| | J923 | QMS6A60-E31H | MICROPHONE JACK | |
| | J924 | QMS6A60-E31H | MICROPHONE JACK | |
| | J925 | QMS6A60-E31H | MICROPHONE JACK | |
| | L981 | QQL231K-150 | INDUCTOR | |
| | L982 | QQL231K-5R6 | INDUCTOR | |
| | L983 | QQL231K-5R6 | INDUCTOR | |
| | ORG | QWE883-07RR | VINYL WIRE | |
| ⚠ | P101 | QMCB001-E02H | AC SOCKET | |
| ⚠ | S151 | QSS1L22-E01 | SLIDE SWITCH | |
| | YLW | QWE884-07RR | VINYL WIRE | |
| | CN601 | EMV7144-015R | CONNECT TERMINAL | |
| | CN602 | EMV5109-006A | CONNECT TERMINAL | |
| | CN604 | VMC0163-R12 | FEMALE CONNECTOR | |
| | CN606 | VMC0163-R11 | CONNECT TERMINAL | |
| | CN611 | QMV5004-002K | PLUG ASSY | |
| | CN921 | EMV7145-005Z | SOCKET ASSY | |
| | FW101 | EWR37B-28LST | FLAT WIRE | |
| | FW603 | VWSB04-13B34K | FLAT WIRE | |
| | JT922 | EMV7145-004Z | SOCKET ASSY | |
| | JT923 | EMV7145-003Z | SOCKET ASSY | |
| | SP601 | VYH7237-001 | I.C.COVER | |
| | SP602 | VYH7237-003 | I.C.COVER | |
| | SP603 | VYH7237-003 | I.C.COVER | |
| | TW601 | EWF102-047 | TERMINAL WIRE | |

■Electrical Parts List(ENV-004)

| ⚠ | Item | Parts Number | Description | Area |
|---|---|---|---|---|
| | | I.C.S | | |
| | IC101 | CL480-F1 | I.C(MICRO-COMPUTER) | |
| | IC102 | JCE8006-X | I.C. | |
| | IC103 | HM514260CJ-7X | I.C(D-RAM) | |
| | IC104 | BU1417K | I.C(DIGI-MOS) | |
| | IC105 | BU2173F-X | I.C(DIGI-MOS) | |
| | IC106 | UPD6461GS-635X | I.C(MICRO-COMPUTER) | |
| | IC107 | PQ20VZ11X | I.C(M) | |
| | IC108 | TC7SH04FU | I.C(DIGI-MOS) | |
| | IC111 | MN171601AK8J2 | I.C(MICRO-COMPUTER) | |
| | IC112 | TC55257DFLL85EX | I.C(S-RAM) | |
| | IC113 | HD74HCT244FPW | I.C(DIGI-MOS) | |
| | IC114 | HD74HCT245FPW | I.C(DIGI-MOS) | |
| | IC115 | TC74VHC02F-X | I.C(DIGI-MOS) | |
| | | DIODES | | |
| | D141 | DTZ4.7(B)-X | ZENER DIODE | |
| | | TRANSISTORS | | |
| | Q101 | DTA114EKA-X | DIGITAL TRANSISTOR | |
| | | CAPACITORS | | |
| | C101 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C102 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C103 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C105 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C106 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C107 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C110 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C111 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C112 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C113 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C115 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C116 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C122 | NCS31HJ-150AY | 15PF 50V CER.CAP. | |
| | C123 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C124 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C125 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C126 | NEA20JM-226NZ | 22MF 6.3V AL E.CAP. | |
| | C127 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C131 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C132 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C133 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C134 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C141 | NCB31HK-472AY | 4700PF 50V CER.CAP. | |
| | C151 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C152 | NEA20JM-226NZ | 22MF 6.3V AL E.CAP. | |
| | C153 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C154 | NEA20JM-226NZ | 22MF 6.3V AL E.CAP. | |
| | C155 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C156 | NEA20JM-226NZ | 22MF 6.3V AL E.CAP. | |
| | C157 | NEA20JM-226NZ | 22MF 6.3V AL E.CAP. | |
| | C158 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | C162 | NCS21HJ-681AY | 680PF 50V CER.CAP. | |
| | C168 | NCB31HK-152AY | 1500PF 50V CER.CAP. | |
| | C169 | NCS31HJ-102AYM | 1000PF 50V CER.CAP. | |
| | C173 | NCB21HK-122AY | 1200PF 50V CER.CAP. | |
| | C181 | NCF31EZ-104AY | 0.1MF 25V CER.CAP. | |
| | TC101 | ENZ1003-017T | 010MF TRIMMER CAPA | |
| | | RESISTORS | | |
| | R102 | NRSA63J-473NY | METAL GLAZE | |
| | R103 | NRSA63J-103N | METAL GLAZE | |
| | R104 | NRSA63J-105NY | METAL GLAZE | |
| | R105 | NRSA63J-242NY | METAL GLAZE | |
| | R106 | NRSA63J-682NY | METAL GLAZE | |
| | R107 | NRSA63J-112NY | METAL GLAZE | |
| | R109 | NRSA63J-750NY | METAL GLAZE | |
| | R110 | NRSA63J-750NY | METAL GLAZE | |
| | R111 | NRSA63J-182NY | METAL GLAZE | |

| ⚠ | Item | Parts Number | Description | Area |
|---|---|---|---|---|
| | R112 | NRSA63J-112NY | METAL GLAZE | |
| | R115 | NRSA63J-0R0N | METAL GLAZE | |
| | R121 | NRSA63J-102NY | METAL GLAZE | |
| | R122 | NRSA63J-102NY | METAL GLAZE | |
| | R123 | NRSA63J-102NY | METAL GLAZE | |
| | R124 | NRSA63J-102NY | METAL GLAZE | |
| | R125 | NRSA63J-102NY | METAL GLAZE | |
| | R135 | NRSA63J-121NY | METAL GLAZE | |
| | R141 | NRSA63J-750NY | METAL GLAZE | |
| | R142 | NRSA63J-562NY | METAL GLAZE | |
| | R153 | NRSA63J-222NY | METAL GLAZE | |
| | R154 | NRSA63J-331NY | METAL GLAZE | |
| | R155 | NRSA63J-271NY | METAL GLAZE | |
| | R191 | NRSA63J-820NY | METAL GLAZE | |
| | R192 | NRSA63J-820NY | METAL GLAZE | |
| | R193 | NRSA63J-820NY | METAL GLAZE | |
| | R194 | NRSA63J-750NY | METAL GLAZE | |
| | | OTHERS | | |
| | | EMW10624-101 | PRINTED BOARD | |
| | K101 | ENZ8102-N102AY | FERRITE BEADS | |
| | K103 | ENZ8102-N102AY | FERRITE BEADS | |
| | L102 | VQP1007-2R7Y | INDUCTOR | |
| | L103 | VQP1007-2R7Y | INDUCTOR | |
| | X101 | ECX0013-500KN9T | CRYSTAL | |
| | CN101 | EMV7154-215E | CONNECT TERMINAL | |
| | CN102 | EMV5109-012BE | CONNECT TERMINAL | |
| | CN103 | EMV5109-006BE | CONNECT TERMINAL | |

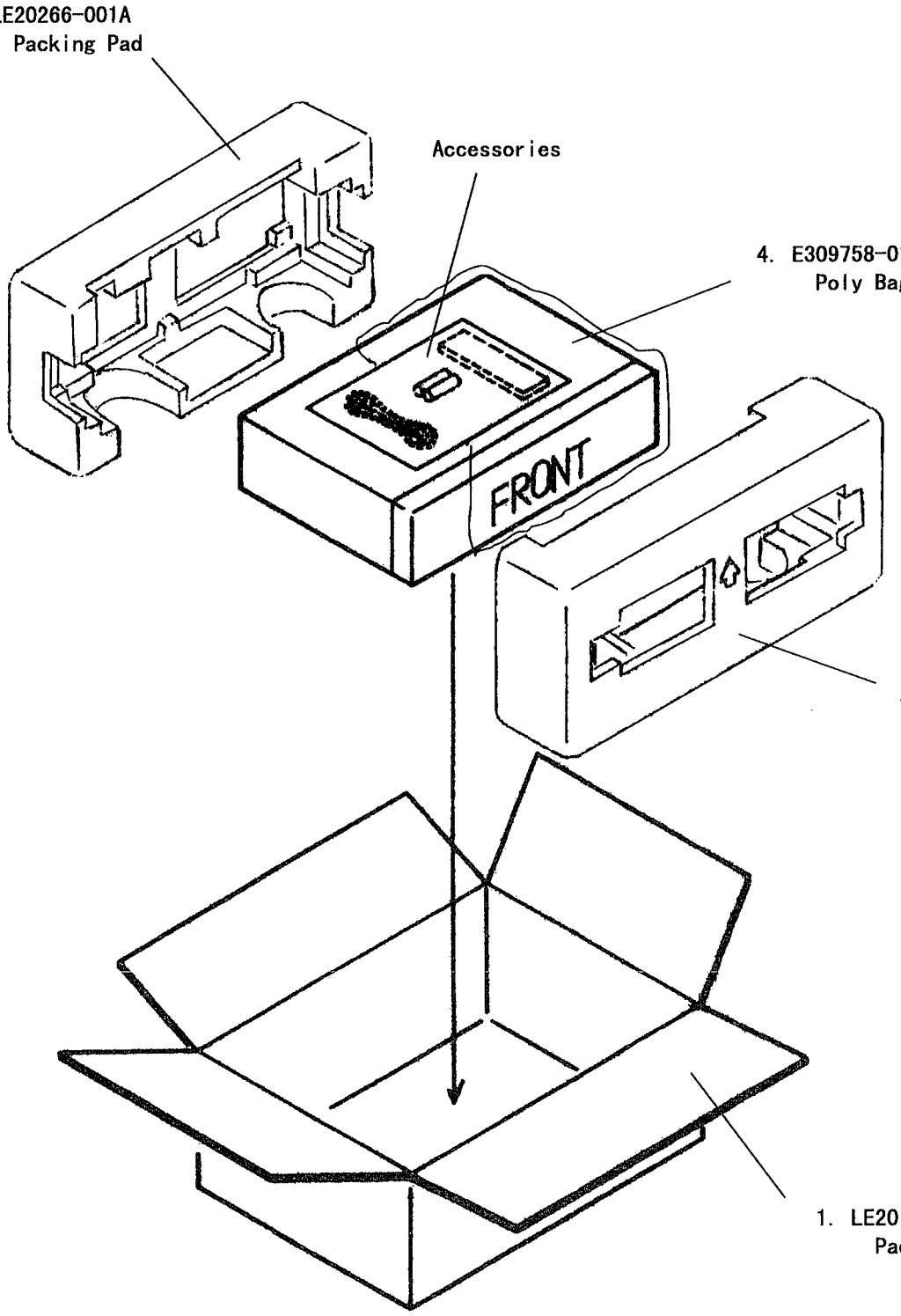
## ■ Electrical Parts List (Changer Control P.C.B.)

| ⚠ | Item | Parts Number | Description | Area |
|---|---|---|---|---|
| | | I.C.S | | |
| | IC801 | UPD65612GB-208 | I.C(M) | |
| | IC802 | TA8409S | I.C(MONO-ANALOG) | |
| | IC803 | TA8409S | I.C(MONO-ANALOG) | |
| | | CAPACITORS | | |
| | C801 | QEK51AM-107 | AL E.CAP. | |
| | C802 | QEK51EM-475 | AL E.CAP. | |
| | C803 | QFLB1HJ-102 | 1000PF 50V MYLAR CAP. | |
| | C804 | QCFB1HZ-104Y | 0.1MF 50V CER.CAP. | |
| | C805 | QCVB1CM-103Y | 0.01MF 16V CER.CAP. | |
| | C806 | QEK51CM-476 | AL E.CAP. | |
| | C808 | QFLB1HJ-102 | 1000PF 50V MYLAR CAP. | |
| | C810 | QCZ0205-155 | 1.5MF 25V C.CAP. | |
| | C811 | QCZ0205-155 | 1.5MF 25V C.CAP. | |
| | C813 | QCVB1CM-103Y | 0.01MF 16V CER.CAP. | |
| | C821 | QCBB1HK-102Y | 1000PF 50V CER.CAP. | |
| | | RESISTORS | | |
| | R805 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R806 | QRD161J-471 | 470 1/6W CARBON RES. | |
| | R807 | QRD161J-471 | 470 1/6W CARBON RES. | |
| | R808 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R810 | QRD161J-684 | 680K 1/6W CARBON RES. | |
| | R811 | QRD161J-105 | 1M 1/6W CARBON RES. | |
| | R813 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R814 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R815 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R816 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R817 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R818 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R819 | QRD161J-102 | 1K 1/6W CARBON RES. | |

| ⚠ | Item | Parts Number | Description | Area |
|---|---|---|---|---|
| | R820 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R821 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R822 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R823 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R824 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R825 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R826 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R827 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R828 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R829 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R830 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R832 | QRD161J-181 | 180 1/6W CARBON RES. | |
| | R833 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R834 | QRD161J-102 | 1K 1/6W CARBON RES. | |
| | R839 | QRD167J-332 | 3.3K 1/6W CARBON RES. | |
| | R840 | QRD167J-562 | 5.6K 1/6W CARBON RES. | |
| | | OTHERS | | |
| | | VMW1377-004A | PW BOARD | |
| | | SBSF2608Z | TAPPING SCREW | |
| | | VYH7237-001SS | IC HOLDER | |
| | L801 | VQP0018-100 | INDUCTOR | |
| | L802 | VQP0033-100Z | INDUCTOR | |
| | L803 | VQP0033-100Z | INDUCTOR | |
| | L804 | VQP0033-100Z | INDUCTOR | |
| | CN801 | VMC0163-R10 | CONNECT TERMINAL | |
| | CN802 | VMC0289-P07 | CONNECT TERMINAL | |
| | CN803 | VMC0324-12310 | CONNECT TERMINAL | |
| | CN804 | VMC0289-S07 | CONNECTOR | |

# Packing Materials and Part Numbers

Block No. M 4 M M



■Accessories List

Block No. M5MM

| ⚠ | Item | Parts Number | Parts Name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | 1 | LET0079-001A | INSTRUCTION BOOK | 1 | | |
| ⚠ | 2 | QMP7530-183 | POWER CORD | 1 | | |
| | 3 | BT-59001-1C | JSC W CARD | 1 | | |
| | 4 | E309758-003 | POLY BAG | 1 | | |
| | 6 | PEAC0359-120 | SIGNAL CORD | 1 | | |
| | 7 | RM-SXMV5U | WIRE-LESS REMOTE CONTROL | 1 | | |
| | 8 | R03UPTT-2STS | DRY CELL | 2 | | |

JVC
VICTOR COMPANY OF JAPAN, LIMITED
AUDIO DIVISION,10-1,Chome,Ohwatari-machi,maebashi-city,Japan

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